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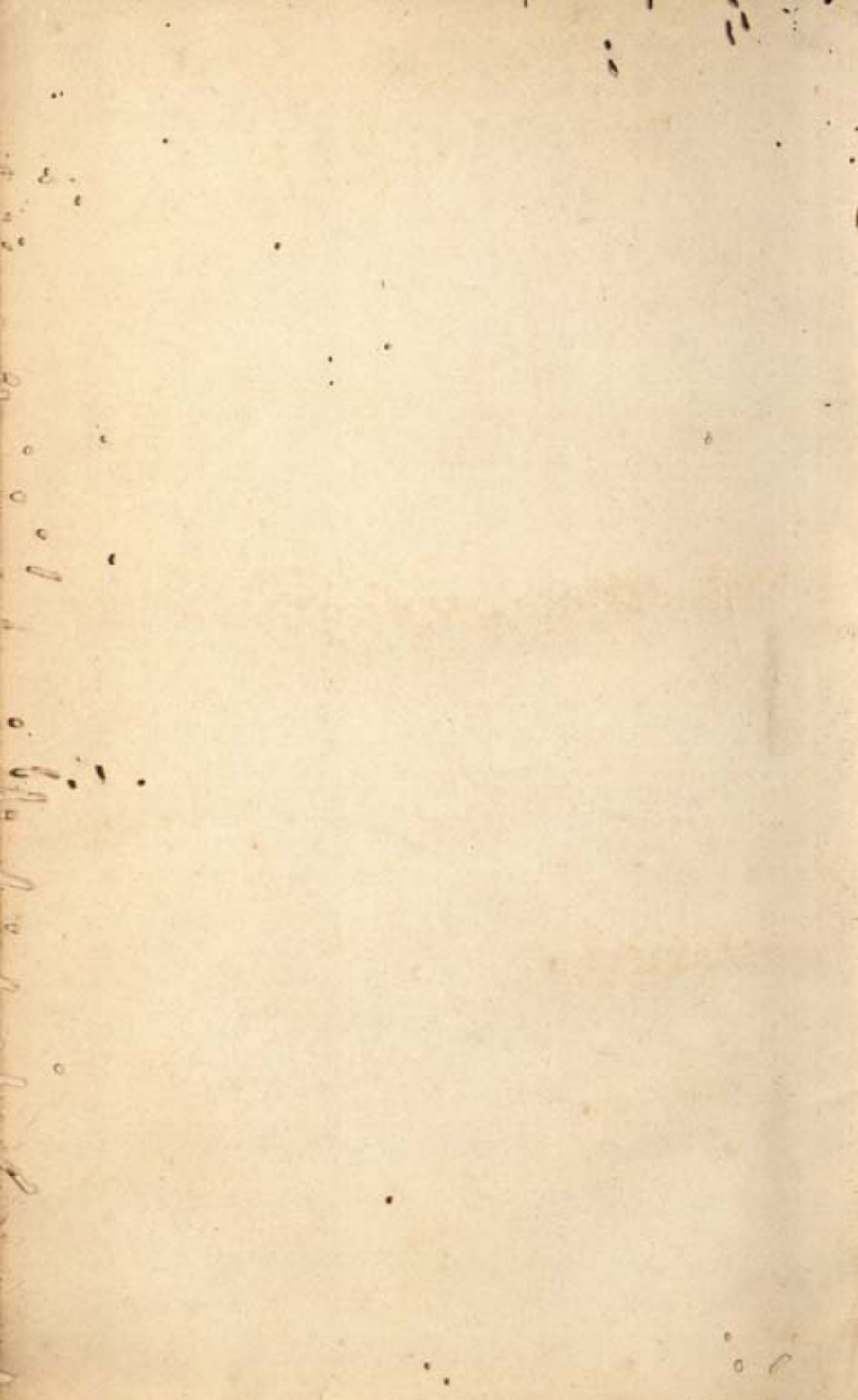
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II. The second part of the book is devoted to a detailed discussion of the various branches of philosophy. It begins with a discussion of logic, which is the study of the principles of reasoning. It then discusses metaphysics, which is the study of the nature of reality. Finally, it discusses ethics, which is the study of the principles of morality.

APPENDIX

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- 1831.—Mr. RICHARD LANDER, for the discovery of the course of the River Niger or Quorra, and its outlet in the Gulf of Benin, in Central Africa.
- 1832.—Mr. JOHN BISCOE, for the discovery of the land now named "Enderby's Land" and "Graham's Land," in the Antarctic Ocean.
- 1833.—Captain Sir JOHN ROSS, R.N., for discovery in the Arctic Regions of America.
- 1834.—Major Sir A. BURNES, C.B., F.R.S., for the navigation of the River Indus, and a journey by Balkh and Bokhara across Central Asia.
- 1835.—Captain Sir GEORGE BACK, R.N., for the discovery of the Great Fish River, and navigating it to the sea on the Arctic Coast of America.
- 1836.—Captain ROBERT FITZROY, R.N., for the survey of the shores of Patagonia, Chile, and Peru, in South America.
- 1837.—Colonel CHESNEY, R.A., F.R.S., for the general conduct of the "Euphrates Expedition" in 1835-6, and for the accessions to comparative and physical geography relating to the countries of Northern Syria, Mesopotamia, and the Delta of Susiana.
- 1838.—Mr. THOMAS SIMPSON, [Founder's Medal.] for the discovery and tracing, in 1837 and 1838, of about 300 miles of the Arctic shores of America.
- Dr. EDWARD RÜPPELL, [Patron's Medal.] for his travels and researches in Nubia, Kordofán, Arabia, and Abyssinia.
- 1839.—Mr. R. H. SCHOMBURGK, [Patron's Medal.] for his travels and researches during the years 1835-9 in the colony of British Guayana, and in the adjacent parts of South America.
- Major H. C. RAWLINSON, E.I.C., [Founder's Medal.] for his travels and researches in Susiana and Persian Kurdistán, and for the light thrown by him on the comparative geography of Western Asia.

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ADDRESS

TO THE

ROYAL GEOGRAPHICAL SOCIETY OF LONDON;

Delivered at the Anniversary Meeting on the 25th May, 1840,

BY

GEORGE BELLAS GREENOUGH, Esq., F.R.S.,
PRESIDENT.

GENTLEMEN,

IN discharge of that duty which the example of my learned and able predecessor has happily rendered imperative on all after-occupants of this chair, I am now to address you on various subjects which appear deserving of attention, as connected with the occasion on which we are met and with the condition in which the Society finds itself at the present moment.

And, first, let me congratulate you on the favourable report which the Council has this day laid before you on the state of our finances. I may also congratulate you on the rapid augmentation of our library, to which has been added 540 volumes and 680 sheets of maps and charts. For many of these works the Society is indebted to the Board of Ordnance, the Hydrographic Office, to the Lord Lieutenant of Ireland; to various foreign academies, as Paris, St. Petersburg, Berlin, Lisbon, Copenhagen, Philadelphia, &c.; to the Dépôts de la Guerre et de la Marine in France; but more especially to the munificence of His Majesty the King of Bavaria, who has presented to us the Topographische Atlas of that kingdom in 100 sheets.

The government maps of the Duchy of Salzburg in fifteen sheets, and of Austria Proper in thirty, have been added to our collection by Mr. Löwenstern, from whom we have also received within these few days a map of Styria and Illyria in thirty-six sheets, presented by Mr. Killmann of Vienna.

The Chevalier Brünsted has lately procured for us all the maps published by the Royal Danish Society of Sciences.

Colonel Visconti has sent us the map of Sicily, by Marzolla. Mr. Vandermaelen kindly supplies the Society with a copy, as soon as it appears, of every work published at his extensive establishment; among which we may particularly mention a plan of the city of Brussels, executed by Mr. Craan, in four sheets, on the scale of $\frac{1}{25000}$, or about 30 inches to a mile. Professor Schouw has presented to our library his *Tableau du Climat de l'Italie*, a work which I shall have occasion to notice hereafter.

While I mention as a further topic of congratulation the steady increase which has taken place in the number of our members, I cannot be unmindful how heavily the hand of death has pressed upon us during the past year. Among the geographers whom we regret, though not one of our fraternity, I may mention James Prinsep, secretary of the Asiatic Society in Bengal; a man of very active habits and extensive attainments. The journal which he conducted for many years, and which abounds in valuable information on all subjects connected with the East, more especially geographical subjects, will be a lasting memorial of his unwearied industry and research. The close attention which he paid to literary and scientific pursuits no doubt impaired his constitution, and I am afraid shortened his life.

Admiral Klint, of the Swedish navy, died at Stockholm in advanced age. His hydrographic labours, applied principally to the coasts of his native country, are generally known and highly appreciated.

Ziwolka, a master-pilot in the Russian navy, well known to you as the explorer of the coast of Novaia Zemlia, died during the late Russian expedition to that country.

Within our more immediate circle, we have to regret the loss of Lieutenant-General Sir Alexander Dickson, an officer who served with great distinction in the peninsular war, and was a very zealous member of our council.

The name of Allan Cunningham will bring to your recollection one of the earliest explorers of Australia, and one of the most successful. In the course of a botanical excursion which he made in New Zealand he exposed himself too fearlessly to dangers, and contracted the disorder which terminated his life. He died at Sydney.

Thomas Drummond, a captain in the royal engineers, who was engaged during the latter part of his life almost exclusively in the arduous duties of his official situation as under-secretary in Ireland, was at an earlier period no less zealous in the pursuit of science: while employed

on the trigonometrical survey of England he made great improvements in the heliostat, and, by his striking and beautiful invention of the Drummond light, has rendered an important and lasting service to geodesy.

Lastly, I beg leave to call from you a passing tribute of regret to the late venerable father of some branches of natural history, I. F. Blumenbach. It is more than forty years since my immediate predecessor in this chair and myself were fellow-listeners to his luminous and singularly attractive lectures on comparative anatomy. He it was who first inspired me with a love of natural history: My fortunate introduction to that great and amiable man gave an entirely new direction to my studies, and decided the destiny of my after-life. I trust, therefore, that I may be excused for speaking of him with more than ordinary interest. Blumenbach occupied the professor's chair in the university of Göttingen more than fifty years, and during that period no man had a greater share in promoting the successful study of physiology and natural history, not in Germany alone, but throughout entire Europe. He was the earliest writer who founded zoological classification on the basis of comparative anatomy, and taught naturalists to derive their groups and families from an examination of the whole structure of animals, and more particularly of those organs upon which the most important habits of each tribe depend. He thus marked out the path which Cuvier afterwards travelled with such distinguished success, and anticipated him in many of his conclusions. In ingenuity and almost intuitive insight the character of his mind approached nearly to that of an eminent philosopher in our own country, of whom he was accustomed to speak in terms of the highest admiration—I mean John Hunter. Blumenbach might indeed be called, not inaptly, the John Hunter of Germany. His essay on the *Nisus formativus* comprises certain imaginative and speculative views, which may perhaps have suggested a part of the theories since broached in the school of Geoffroy St.-Hilaire; but his works on anthropology and ethnography are more nearly connected with our pursuits, and, independently of that circumstance, have higher claims to our regard. Blumenbach was the first naturalist who, in direct opposition to Linnæus, drew a broad and well-marked line of division between the genus *homo* and the genus *simia*, laid down correctly the physiological differences between the two, and thus effectually vindicated the dignity of mankind. He too was the first who, upon the broad basis of well-established observations, separated the human species into varieties. With this design he had at an early period formed the first series ever made, of any value or extent, of native crania collected in different parts of the world, and he ascertained by careful examination of these the leading characters which distinguish

the European head, the African, and that of the native of eastern Asia respectively; to these, which he regarded as the principal varieties, he added two intermediate races for the natives of Polynesia and those of the New World, making in all five divisions of mankind. These divisions, however, he considered only as particular types to which the crania of various other tribes and nations approximate; whereas Cuvier, and other writers who adopt the system in general, consider them to be permanent and indelible. Professor Blumenbach reached the advanced age of eighty-eight.

I had the satisfaction, on the first evening in which I occupied this chair as your president, to notify to you that the Council had at length succeeded in obtaining a more comfortable set of apartments than those in which the business of the Society had been before transacted. Many, I would fain say all of you, have witnessed the improved accommodation provided for the members, not only for consulting the contents of our library, but also for studying, copying, or constructing maps. The facility with which our books are lent out on proper application to the individual members of the Society has, I am happy to say, been attended with no inconvenience.

Our new abode does not contain an apartment large enough for the reception of the general meetings, but by the liberality of the Horticultural Society we are enabled still to occupy upon these occasions the room in which we are now assembled.

You have been informed in the report of the Council that the Patron's Medal for the year 1839 has been awarded to Mr. R. H. Schomburgk, for his perseverance and success in exploring the territory and investigating the resources of the colony of British Guayana, and a large tract of the continent of South America immediately adjacent.

In November, 1834, Mr. Schomburgk was engaged by this Society to explore the interior of British Guayana, and afterwards to connect his astronomical observations with those of Baron Humboldt on the Upper Orinoco. His reports upon the colony have appeared from time to time in the Journal, and your attention was particularly called to his progress by my predecessor in his annual addresses in 1838 and 1839. Within these few days Mr. Schomburgk has further published a description of British Guayana, geographical and statistical, exhibiting the resources and capabilities of that valuable colony. These several publications are replete with valuable information in respect of a large extent of country belonging to the British Crown hitherto unknown. Having completed his examination of the great water-courses and phy-

sical geography of that region, in the winter of 1838-39 Mr. Schomburgk proceeded westward, to execute the ulterior object of the Society, and to connect his positions with Esmeralda, the most easterly point determined by Baron Humboldt in 1800: to do so, he had to traverse 700 miles of a country never yet trodden by any European, so far as we know; an attempt in which he suffered greatly from fever, fatigue, and privation of every kind. For the details of this important journey I must refer you to the forthcoming Part of the *Geographical Journal*; but I cannot omit to call your attention to the unwearied perseverance and undaunted zeal with which this gentleman has carried out the plan of the Council, and accomplished to the fullest extent the interesting objects which the Geographical Society originally contemplated in employing him.

The map of the country which he has explored, and which is now published by the Society, is the best index of his labours in your service; it has drawn forth the praises of the first geographer of modern time—I cannot doubt but it will receive yours: nor has this improvement in the physical geography of British Guayana, and so large a portion of the adjoining districts, been the only fruit of Mr. Schomburgk's labours. Ethnography, botany, and zoology, have received from him contributions of great interest, which have proved him to be a traveller of no ordinary accomplishments.

The Council, as already mentioned, have deemed Mr. Schomburgk's labours worthy of the highest reward it is in their power to bestow. They have awarded him the Patron's Medal for the year 1839. And it may be satisfactory to the Society to be informed that in such estimation are this gentleman's labours held by Her Majesty's government, that they have selected him, as I understand, to return to Guayana, in order to undertake the important and delicate task of laying down the boundaries of the British possessions in that part of South America—a measure the necessity of which his own observations have forcibly shown, if the sovereignty of Great Britain is to be asserted as it ought to be, and if the defenceless natives are to be duly protected from the savage inroads of the slave-traders of Brazil. That the reduction of those tribes to Christianity and civilization is well worthy the attention of an enlightened government I need not say, nor that the consequences thereof will be of the first importance to the neighbouring colony, where the want of a labouring native population is acknowledged to be the only drawback to its more rapid advancement. If such should be among the fruits of Mr. Schomburgk's travels, the Society will have additional grounds for self-gratulation.

You have also been informed that the Founder's Medal has been awarded in like manner to Major Henry Creswicke Rawlinson, in testimony of the services he has rendered to geography by his researches in Susiana and Persian Kurdistan, and for the light thrown by him on the comparative geography of those regions. Major Rawlinson is a distinguished officer in the Bombay army, who, at the request of the Persian government, has for many years been quartered in Persia and intrusted with the command of a corps of cavalry. The papers which entitle him, in the judgment of the Council, to this public testimony of your gratitude and respect, and which have appeared in the IXth and Xth volumes of our Journal, are the result of the information he was enabled to procure, either in his marches through that country, or in the course of his travels when not professionally employed. The area described comprehends the provinces of Kermanshah, Luristan, and Khuzistan.

• In those parts of his memoirs which are most strictly geographical the author has traced both with the pen and pencil two important routes, which never before were inserted on any map, or visited by any European. The one is the shortest and most direct line of communication between the towns of Bisitun and Dizful; the other runs from Nineveh to Ecbatana, and extends under the mountain-ridge of Pushti-kuh to the river which is now called Sefid Rud, formerly the Amardus. The physical features of the country in the neighbourhood of these routes are clearly and, no doubt, accurately detailed.

These are the principal additions which the author has made to the stock of positive geography, the most important of all the branches of geography, but by no means the only one which it becomes us to cultivate and support. Let it be remembered that no inconsiderable share of the reputation of Rennell and of Vincent, and, I may add, almost the whole reputation of D'Anville, rests upon the erudition, sagacity, and critical acumen displayed in their respective attempts to reconcile to the natural and necessary conclusions of modern experience the obscure, ambiguous, and often contradictory records of early history, and still more early tradition.

• In the person of this gallant officer we find united to the sterner qualification of a geographer the accomplishments of the scholar, the antiquarian, and the man of taste. Familiar with all the accounts that had appeared either in ancient or modern times in regard to the region which he was about to explore, equally conversant with dead and with living languages, observation and erudition acted reciprocally upon his mind, sometimes exciting, sometimes restraining the speed

with which he pressed onwards to his conclusions; to form a just estimate of his merit we must look not only to the termination of his labours, but to the severe self-discipline he underwent lest he might not feel qualified to commence them.

Major Rawlinson has proved, 1. That the ancient Choaspes and Eulæus rivers were not, as hitherto supposed, one and the same, but two distinct rivers; the former, now called Kerkhah, taking its rise in Kermanshah; the other, now called Kuran, in Khuzistan.

2. After a careful examination of the traditions, names, physiognomy, and religion of the wandering Guruns and Illyats, he is of opinion that these Persian tribes are descendants of the Jews of the Samaritan captivity. •

3. On the south of the Kuran, in Khuzistan, is situate Elymais, a province which rose to great opulence and prosperity after its conquest by Alexander. On the fire-temples in Elymais he has communicated to us much historical information, and hesitates not to identify the ruins • which he there visited with those temples which attracted the cupidity of the Syrian and Parthian kings.

4. He has treated with great erudition, but only partially, the difficult question as to the successive capitals of Susiana: the similarity of their names, he thinks, has caused them to be confounded one with another. There would appear to have been three capitals. 1. Susa, or Susa, the Shustan of Scripture, near the Kuran River (Eulæus). 2. Sus, or Susa, of Herodotus, near the Kerkhah (Choaspes). 3. Shapur and Shuster on the Kuran. His more detailed evidence on this subject will be brought forward in a separate work.

5. The author in his second memoir traces the march of Cyrus, Ptolemy, and Heraclius; he also describes various tribes on the east and south of Lake Urumiyah, and makes us acquainted with their history, manners and customs, superstitions, the relations which exist among these tribes, and the acknowledgment by each of a different chief.

In a supplementary memoir of great erudition, and in which Major Rawlinson exhibits very considerable power of conducting a long argument on the several bearings of historical and geographical data, he demonstrates that the Ecbatana of Dejioces, the founder of the Median empire according to Herodotus, was the capital not of Media Magna, but of Media Atropatene, situate 100 miles off to the N.E.,—that it was not at Hamadan but in Azerbaijan, where the ruins of the Ecbatana of Dejioces may still be seen at Takhti Suleïman, exhibiting to a critical eye various local peculiarities which he considers undeniable proofs of this further verification of Armenian or Perso-Armenian geography.

EUROPE.—While the announcement of discovery in remote parts of the world excites in us those pleasurable feelings which always accompany the first appearance of daylight, we are apt to view with heedlessness and indifference the constant but gradual enlightenment which is thrown over civilised countries by the rectification of slight errors, by the accumulation of new observations, the completion of imperfect data, and the announcement of improved methods of conveying accurate information.

British Isles.—In England the ordnance survey has reached as far north as a line drawn east and west from Hull to Preston. The whole work will consist of 110 sheets; of these seventy-eight are published, seven are engraving, and five are still in the hands of the surveyors.

In Scotland the principal triangulation has been carried from the eastern coast westward to the island of Lewis, in the northern part of the Hebrides.

The townland survey of Ireland advances rapidly to its completion: it has already extended to every part of that kingdom with the exception of the counties of Cork and Kerry. Whether we consider the extent of this undertaking or its execution, it may safely be pronounced the most valuable work of the kind which has ever been devised. It is engraved and published on the scale of six inches to a mile, and will occupy nearly two thousand sheets: the plans of the towns are drawn on a scale one hundred times greater than that just mentioned. No fewer than 2000 persons are employed on this survey, and it is difficult to praise too highly the organisation of this vast establishment.

The hydrographic surveys under the direction of the Admiralty keep pace with the land surveys of the Board of Ordnance.

The river Thames and the great shoals and channels at its entrance have undergone thorough examination by Captain Bullock, R.N.; while more to the seaward Captain Hewett in the *Fairy* is engaged upon the survey of the North Sea, including its numerous banks between our own coasts and the entrance of the Baltic.

The survey of the east coast of England having been finished, the party under Captain Slater is now advancing to the northward along the east coast of Scotland, and is engaged on the Frith of Cromarty.

That of the Shetlands also being complete, Mr. Thomas is occupied with the not less important group of the Orkneys, where, owing to the continued wet weather, the survey is very tedious.

On the west coast of Scotland Captain Robinson is advancing towards Glasgow and to the numerous islands of the Hebrides. Further south, having completed the coast of Wales, Lieut. Sherringham is at work between the Bristol Channel and the Land's End.

Captain Beechey is engaged in the *African* steamer in the Irish Channel, of which no survey had hitherto been made to facilitate this important navigation. In the course of his examination this officer has recently discovered a circular bank with only twenty fathoms water on it, lying 13 miles S. 41° W. (true) of the Craig of Ailsa. On the east coast of Ireland the shore has been finished from Ballyshannon round by the north to Wicklow Head; and Lieut. Frazer is now about to proceed along the south-eastern shore and the Arklow Banks.

Of the navigable lakes and rivers in the interior of Ireland, the party having surveyed Lough Derg and the river to Limerick, Lieut. Wolfe and his assistant, Lieut. Beechey, are now working into Fergus Bay and the estuary of the Shannon.

The Topographic Map of France publishing at the Dépôt de la Guerre, in Paris, advances with regularity and precision at the rate of twelve sheets a-year.

The publication of an accompanying memoir, containing the entire data on which this truly national work is based, affords an example well worthy of imitation in every other country where great surveys are in progress.

It is with much pleasure I add that the French Government has decided on commencing at once a survey of the south coast of France, corresponding to those executed of the western and northern coasts. This will add a sixth volume to the magnificent work '*Le Pilote Français*,' which (thanks to the liberality of the French Government) forms one of the greatest ornaments of our library.

Several sheets have been added during the past year to the published portions of the various government surveys which are in progress throughout Europe; these it is unnecessary to particularize, but I may mention as a novelty a map of Galicia in Spain, in twelve sheets, on the scale of 1:100,000, made under the direction of Signor Fontan, director of the Observatory at Madrid, a small index-map of which has recently been engraved at Paris by M. Bouffard. Three charts of the coast of Norway have just been published, being the first of a series resulting from a survey ordered by the Storting to be made of the coasts of Norway and Finmark, from Trondheim to the Russian frontier.

At Brussels Mr. Vandermaelen has recently published a map of Belgium, on the scale of twelve inches to a degree, showing all the lines of railroad completed and projected within that kingdom, together with a map of Europe, exhibiting their ramifications, which reach as far as Berlin and Vienna, Florence and Pisa.

This spirited individual has further undertaken a map of Belgium in twenty-five sheets, on a scale corresponding to that which has been

Morier, R.N., and is shortly, we hope, to be published with a map constructed by Mr. John Arrowsmith. For the third we are indebted to the spirited publisher Arthur Bertrand of Paris, who, besides various notices contained in his new "*Annales des Voyages*," has very opportunely given us in a French garb a description, by Alexis de Levchine, of the hordes and steppes of the Kirghiz-Kazaks.

Professor Baer, at St. Petersburg, one of our corresponding members, has recently sent us a communication on the temperature of those regions, in which it appears that in the parallel of 47° the mean temperature of the three winter months was 4° below zero, and that the mercury on one occasion descended to -40° of Fahrenheit.

According to the latest Russian calculations, the surface of the Caspian sea, before stated to be 101 English feet below the level of the Euxine, now appears to be only 81 feet. A full account of the line of levels which has lately been carried between these two seas, under the direction of the Russian government, will, it is hoped, be soon published.

Turning our attention to the north, we have now the connected and highly interesting narrative of the journey performed by Baron Wrangel along a part of the coast of Siberia in the year 1821, with an excellent chart, embracing Professor Adolph Erman's more southern route through the same country. An important statement in this publication is, that the polar basin, at the distance of 180 miles from land, was invariably free from ice; this fact, taken in connexion with the discoveries recently made on the arctic coast of America (which I shall presently have again occasion to refer to) favours the probability of a north-west passage navigable for ships, and naturally excites in us a hope that the British government may be disposed to make one more effort in order to solve a problem which for three successive centuries has so much engaged the attention of our countrymen. I have great pleasure in adding that a translation of this interesting work by Major Sabine, R.A., is now in the press—an example which I trust will not be lost to us. It is of great importance that all translations of scientific works should be executed by scientific men.

In Arabia discovery has advanced but slowly during the past year. We have received from M. Jomard a general account of what is known, or rather of what remains to be known, of that peninsula.

M. Botta, an Italian naturalist, penetrated into Yemen in 1836, following in part the route of Niebuhr in 1763, by Hodeïda, Hais, and Taas, whence he succeeded in ascending the trachytic mass of Mount Saber, on the summit of which, at an estimated elevation of 7000 feet, he found large ruins called Hasn al Arús, or "Wife's Castle."

The chart of the south coast of Arabia, by Captain Haines and the officers of the *Palinurus*, from Bab-el Mandeb to Misenat in $50^{\circ} 43' E.$, is now published on a large scale, together with plans of all the ports. In noticing this valuable gift rendered to navigators, we may perhaps be permitted to add an expression of regret that the Court of Directors of the East India Company, to whose liberality we are indebted for this survey, should have found reason to suspend the work before completion. Three vessels employed for one season more would connect Misenat with the Persian Gulf, and thus complete the outline of the whole of the Arabian peninsula.

The sailing directions for the Red Sea which have just been published furnish also some very valuable notices on the western coast of Arabia; nor, while speaking of the labours of the officers of the Indian navy, can I omit to mention the recently published chart, by Captain Moresby and Lieutenant Powell, of the Maldivas and Chagos archipelago, on which are delineated, upon the scale of 1 inch to a mile, all the features of these remarkable coral formations.

Mr. Christopher, who accompanied Captain Moresby in his survey, and resided for some time on one of the islands, has published a vocabulary of some extent of the Maldiva language.

Of the survey of British India, the materials for completing the maps of Sulapúr, Haider-abád, and the collectorate of Ganjam, have reached this country, and the sheets 57, 75, and 107 of the Indian Atlas will be published in the course of the year.

Further east, the survey of the coast from the mouth of the Hooghly to the eastward as far as the province of Chittagong, usually known as the "Sea-face" of the Sunderbunds, has by this time been completed by Captain Lloyd, I. N. This officer has also brought to a conclusion the examination of the Mergui archipelago and the coast of Tenasserim left unfinished by Captain Daniel Ross, now President of the Bombay Geographical Society, and to whom oriental hydrography is so much indebted. The interior of the province of Tenasserim has been explored by Dr. Helfer, whose able report on the British province of Amherst, which forms the northern portion of Tenasserim, is arranged under the following heads, viz.:—1. Physical and geological structure of the country. 2. Mineralogical productions. 3. Agriculture and improvements in agriculture with regard to colonisation. 4. Vegetable productions. The natural resources of that country would appear to be very considerable.

Dr. Richardson has given us several routes from Múlmein to Lalong, to Zimmi (the Changmai of our common maps), and Amarapúra. Captain McLeod has gone to the Chinese frontier at Hang-hang, besides which we have the route of the missions lately sent from Múlmein to the capital of Siam.

Farther northward we have Captain Hannay's sketch of the Irawádi above Amarapúra, and of the Hu-kong valley celebrated for its supply of amber. The valuable maps and report of Captain Pemberton on the N. E. frontier of India were alluded to in last year's address; and we have just received an apparently equally valuable report on Bútán, which that officer visited by a new route in 1838.

The only additional information with respect to Cochin-China is derived from the map of the Bishop of Isauropolis, given in the "*Bengal Asiatic Journal*," principally valuable on account of the political divisions of the country marked upon it.

A map of Upper Assam, lithographed by Mr. Tassin at Calcutta, has lately reached this country. It shows all the tea localities and the recent political changes in a district whose importance to our national and commercial interests is daily increasing. Mr. Tassin has for several years been engaged in constructing a map of Bengal Proper, comprehending the country from Allahabad to Manipúr, on a scale of 8 miles to an inch: this map, we learn from Mr. J. Fergusson, may daily be expected in England, and will be peculiarly interesting, as showing all the extraordinary changes that have taken place in the course of the rivers of the Delta of the Ganges since Rennell's survey was made.

Still farther east the rumour of war (which it is to be hoped may be avoided) has been productive of a new set of maps of the whole of the sea-coast of China, from the Gulf of Siam to Corea, in 17 sheets, engraved and published at the Hydrographic Office, in a very short space of time, to meet the exigency of the occasion, compiled from all available sources, either printed or in MS., and embodying all that is known of those shores, a complete survey of which is still a great desideratum in hydrography.

Von Siebold's great work on Japan proceeds, though slowly, in Holland; and a French translation of it has been published by Bertrand in Paris. Our Journal has been enriched by an analysis of it by Dr. Prichard; and you will be gratified to learn that this gentleman, already well known to you by the two first volumes of his excellent work '*Researches into the Physical History of Mankind*,' has just completed his third volume, comprising the Ethnography of Asia and Europe, which will be published in the course of this summer.

We still look for Professor Adolph Erman's third volume of his '*Reise um die Erde*,' which will contain an account of the remarkable Peninsula of Kamchatka, for a beautiful map of which we are already indebted to him.

Returning to the westward, we have now a published account of Sir W. Lloyd's journey in 1822 from Khánpor to the Burandú Pass in

the Himálaya Mountains, and a republication of a portion of the routes of the well-known and excellent travellers the three brothers Gerard, who about the same time visited the Shatúl and Burendú Passes; and that of Captain A. Gerard, in his attempt to reach Garú, on the Indus, in 1829. Deploring, in common with all geographers, the early death of two of these persevering explorers of the Himálaya Mountains, we may be permitted to express a hope that the survivor, Captain P. Gerard, will, in justice to the memory of his brothers, give to the world a complete and connected account of their various journeys, which are now only to be found scattered through the "*Asiatic Researches*," and other scientific journals.

In the same region, but more to the N.W., we have recently had the gratification within these walls of hearing Mr. G. T. Vigne give an animated description of his journey through the Panj-ab, Kábul, Kashmír, and into Little Thibet, illustrated by some beautiful sketches and panoramic views of the city of Kabúl and the valley of Kashmír. Mr. Vigne has been one of the few European travellers who have ever accomplished the difficult task of penetrating to Iskardoh. The author's published volume on Kábul contains much information of peculiar interest at this time, when we have been obliged to take so active a part in respect to the disturbed state of those countries; but the geographer will look forward with still greater interest to an account of a journey into Thibet, which, it is to be hoped, Mr. Vigne will soon lay before the public.

Mr. Asher, of Berlin, has rendered good service to geography by giving us a new English translation of the travels of Rabbi Benjamin, of Tudela, through parts of Europe, Asia, and Africa, in the year 1173, which seems valuable.

The *revenue* surveys, which have been for many years in progress in the north-western provinces of India or presidency of Agra, would afford materials for the construction of an excellent map of that country, if properly digested. None of these are yet, however, in the hands of the public.

Captain Paton, late deputy quartermaster-general at Nemuch, has recently surveyed a considerable portion of Rajputana, and constructed a map on the scale of 4 miles to an inch; but no copy has, we believe, reached this country.

The course of the Indus, from Mittun to Attak, has been surveyed and mapped upon a large scale by Sir Alexander Burnes and Lieutenants Wood, Leach, and Mackeson, who accompanied the mission to Kábul. Mackeson continued the survey into Kashmír, and Burnes and Wood carried it westward; but the present peaceable occupation of the countries of Kábul and Afghanistan will, I have no doubt,

lead to a much better acquaintance with their geography, if not to an actual survey.

The mouths of the river Indus, being constantly liable to change in a soft alluvial soil, have recently been re-examined preparatory to the publication of a chart of the entrances on a large scale. The rapid extension of our commerce in this direction will shortly tend to make this great boundary of Western India the high road of nations, and lead to the exploration of its sources, hitherto concealed from our knowledge; but on this subject I must mention the very remarkable statement lately made by Lieutenant Wood, I.N., founded on his late examination of the Indus, that this river is not generally navigable by steam-vessels having more than thirty inches draft of water.

The source of another river famous in ancient history, the Oxus or Amú of the moderns, has been reached by this young officer. It is found in a lake about 14 miles long from E. to W., in the plateau of Pamír, at an elevation of upwards of 15,000 feet above the level of the sea, and, as nearly as we can judge from calculations not yet accurately worked out, in lat. $37^{\circ} 27' N.$, long $73^{\circ} 40' E.$ The perseverance and intrepidity of Mr. Wood in pushing on in spite of all obstacles, and over ground covered with snow, deserves our warmest applause.

Proceeding a little further west, we approach a country that has recently been explored by a traveller of no ordinary mind. I need hardly say that I allude to Major Rawlinson's researches in the countries of Khuzistan, Luristan, and Azerbiján, a full abstract of which I have already had the gratification of laying before you in noticing the award of our Founder's Medal for 1839.

We have not yet been able satisfactorily to ascertain the truth of the reported depression of the level of the Dead Sea below the Mediterranean, and we still hope for the account of some careful observer, who may carry thither a good mountain barometer; in the mean time we look for the narrative of the Syrian travels of Dr. Robinson and the Rev. Eli Smith (who have already pointed out several mistakes in M. de Bertou's Memoir), which will lay before us the results of a journey made by keen observers and accomplished scholars.

In Asia Minor, that classic land of travellers, of which, from the earliest down to the most recent times, we have itineraries and routes without number, one might have thought there was little left to discover; but, far from this being the case, we find, from the journals of Messrs. Ainsworth, Rassam, and Russell, that, bordering on Europe, and within the reach even of our tourists, there are rich mines almost unknown; large cities whose names do not appear in our maps; forests abounding in timber, available for ship-building; and, in short, all the resources of a fertile and populous country.

A former account of these travellers conducted them from Constantinople, along the coast, by Erekli and Amaserah, to Chorúm and Angora. Having passed the winter at this latter city, they explored the mines of Ishik-Tagh to the N., lying about 4500 feet above the sea. They then travelled westwards to examine the Kurdish districts of Haímaneh; thence, turning to the southward by a circuitous route, they travelled by Kizil-jah Kal'ah to the galena mines of Denek-Maden; then by Uch Ayák and Kír Shehr to Neu-Shehr, whence, taking a N.W. direction, they rounded the great salt lake of Tuz-Chuli, and traced its western outline. From Ak-Serai they travelled by Kaisariyah, Gurun, Derendah, and the little-known valley of the Tokmah Su to Maláiyah, whence, turning to the southward, they journeyed by the Nushan Pass through the Taurus to Sameísat and Birch-jik on the Euphrates; thus completing a route of nearly 1000 miles, through a tract of country most imperfectly laid down on all existing maps. The unfortunate result of the battle of Nezib, at which they were present, and the disturbed state of the country, obliged them to return to Constantinople, where they arrived at the end of July.

Quitting this capital again on the 1st of November, Mr. Ainsworth and Mr. Rassam took the road by Iznik, Kutáyah, Koniayah, and through Kulak Boghaz, a pass of the Taurus, to Aleppo; from this place they turned to the eastward, and, passing through Orfah, Mardin, and Nisibin, reached Mósul, on the Tigris, on the 31st of January of the present year. These, then, are the head-quarters of our Kurdistan expedition; and at the date of their last despatches, on the 12th of March, the travellers were only waiting for the melting of the snows to penetrate into the mountains of Kurdistan.

No great difficulty need be anticipated in this journey, since we know that Dr. Grant, of the American mission, has, during the last summer, effected the journey from Mósul, by Amadíyah and Julamerik, to Urumiyah, on the western borders of the lake of the same name.

The work of M. Texier on Asia Minor is in course of publication at Paris, and his map of Lysia has just reached us. We are anxiously looking for the detailed account of Mr. W. Hamilton's journey in 1837-8, which, to judge from the abstract communicated to our Journal, must be of great interest to the geographer. The survey of the western coast of Asia Minor is now nearly completed under Lieutenants Graves and Brock, who, having thus connected their own observations with those of Captain Beaufort in Karamania, will thence proceed to survey the numerous islands of the Archipelago.

In Armenia, Mr. Brant, British consul at Erz-Rúm, has communicated to the Society an account of the extensive journey which he

made in 1838 from that city, in a southerly direction, by Músh and Arghanah Máden, to Kharpút: returning along the valley of the Murad Chaï, or Eastern Euphrates, to Músh, he and his companions turned to the S.E., to Betlis and Tatvan, at the S.W. angle of the Lake of Van: continuing along its southern shores, by Vastan and Artemid, they reached the city of Van, and thence round the N.E. end of the lake to the foot of the Supan Dagħ. They were the first Europeans to ascend that mountain, which rises to the height of 4000 feet above the Lake of Van; or 9500 feet above the level of the sea: from this point the travellers turning to the N.E., passed by the sources of the Murad Chaï, to Bayazíd, at the S.W. foot of Mount Ararat, and thence by the pass of Keusseħ Tagħ to Erz-Rúm: thus completing a tour of about 900 miles through a country imperfectly known and very incorrectly laid down in our maps; many important towns, as Músh, Betlis, Palú, and Kharpút, &c., being placed from 12 to 20 miles in error in latitude.

Throughout this journey the astronomical positions of the principal places were determined, as well as their height, barometrically, above the sea: the line of route mapped by Mr. A. G. Glascott, R.N., shows, among other changes, that the Lake of Van must be extended nearly 30 miles to the N.E. of the place which it occupies at present upon our most accredited maps. This paper of Mr. Consul Brant is one of the most valuable, in respect to physical geography, which the Society has ever received.

M. Dubois de Montpereux of Neufchatel has published three volumes of his *Voyage autour du Caucase*, and several *Livraisons* of geological sections, which appear to be admirably got up.

Descending once more to the plains of Mesopotamia, I cannot deny myself the pleasure of awarding great praise to that enterprising officer Dr. Ross, of Baghdad, who has sent us a graphic account of his two journeys along the western banks of the Tigris to the ruins of Al Haħr, never visited before by any European. He encountered many hair-breadth escapes from the Arabs of the Desert, but finally succeeded in reaching these remarkable ruins, of which he has made a drawing: they are in very fair preservation, and occupy a space about 3 miles in circuit.

Dr. Ross has also made a difficult and rare journey from Móşul to the E.N.E., to the country of the Mir of Rawandúz, a track never before followed by any European, and an account of which he has kindly offered to communicate to the Society.

In the same plains of Mesopotamia, Mr. Forbes, a young medical officer of the Indian army, has explored the Sinjar mountains, a limestone-range, rising 1600 feet above the plains, given us a good account

of their inhabitants of the sect of Yezidis, and corrected the hydrography of this portion of the desert.

Lastly, we have to express our thanks to the President of the Board of Control for the communication of a beautiful map of the Tigris, by Lieut. Lynch, I. N., being a survey of that river from the ruins of Ctesiphon to the city of Mōsul—another of the excellent fruits of the well-known Euphrates expedition; and I am sure you will all join with me in hoping that the detailed account of this latter expedition, so full of geographical interest, will ere long be laid before the public.

AFRICA.—The unbroken mass of the continent of Africa, to which few rivers offer access, still opposes a great, but not, we trust, an insurmountable barrier to the progress of discovery; and, with the exception of an enterprising and successful journey to Ankóbar, the capital of Shoa, in the southern part of Abyssinia, even discovery, not to say geography, has advanced but little during the past year. The constant hostilities between the French and the Arabs on the northern shores have not been favourable to the progress of science.

In Egypt, Sir Gardner Wilkinson, already well known to you by his account of Thebes and his beautiful work on the manners and customs of the ancient Egyptians, has communicated to the Society a paper of much interest on the Nile and on the present and former levels of Egypt, from which it appears that the surface of the land has been raised by the deposits of the river 9 feet in 1700 years at Elephantina, at the first cataract; at Thebes about 7 feet; at Heliopolis about 5 feet 10 inches; and so on, gradually diminishing towards the sea, though in a greater decreasing ratio, owing to the wider extent of the delta. Sir G. Wilkinson also shows that the evil effects usually ascribed to the invasion of the sand have been greatly exaggerated; that the beneficial effects of the alluvial deposit far exceed the injury done by the sand, and that there is a greater proportion of land capable of cultivation now than at any previous period.

Mr. Ignaz Pallme, a Bohemian, has successfully penetrated to Kordofán, where he passed eleven months; and, in addition to the accounts of Rüppell and Holroyd, gives a curious description of the manners of the people and of the fertility of the country.

Between Kordofán and Dar-Fúr, he discovered the town of Kab Belúl, which has never before been mentioned by any European. This enterprising pioneer is, we believe, now at Cairo, ready and anxious to travel again and penetrate into Dar-Fúr, and explore the countries adjoining, if he can find any person to assist him with the small sum he requires. For a further account of M. Ignaz Pallme I may refer you to the

pages of the *Athenæum*; and I gladly embrace the opportunity afforded me of bearing testimony to the value of the geographical information usually found in that periodical. We are indebted for a notice respecting this traveller to another well-known traveller, M. D'Abbadie, who is again on his journey to Abyssinia. While at Cairo he communicated to the Society an account of Mr. Linant's map of Egypt, on the scale of about 4 miles to an inch, which he states to be of much merit; and, from the many years that Mr. Linant has passed in Egypt, and from his qualifications as a geographer, there is no doubt this will be a great addition to our present meagre knowledge of that country, and enable us to judge of the feasibility and comparatively trifling expense of a navigable canal from Suez to the Mediterranean.

Abyssinia has had the good fortune to have been subjected to the investigations of a zealous naturalist and excellent traveller; and we have just received the 2nd Volume, with the map, of Dr. Rüppell's travels in that country, a work which, taken in connexion with his former journey to Kordofán, &c., places its author among the most distinguished travellers of the age. Dr. Rüppell spent much time in fitting himself to be a traveller, whereas the greater part of those who have the opportunity of exploring new countries are from previous education (or rather from the want of it) utterly unfitted to travel profitably: this is the secret of German travellers being so much superior to those of any other country in Europe.

From Mr. Russegger, who carried a good mountain barometer into Kordofán and to the mines at Fazoglo, we learn the elevations of numerous points above the sea, also the approximate positions of several places, put down apparently at hazard on our maps.

In the southern part of this country we have recently received the highly interesting account of the journey of two missionaries, Messrs. Isenberg and Krapff, who have penetrated from Zeilah, by way of Tajúrah, to Ankóbar, the capital of Shoa, where they have resided some months on very friendly terms with the King of Shoa. From their report we learn that this chief's influence is very widely spread, and he governs a rich and fertile country, is well disposed to trade and to assist in putting down the slave-trade, which is carried on to a great extent in Gurague and the adjoining districts, although the King of Shoa himself is not a dealer in slaves: much topographical information was also obtained, the situation of Tajúrah very materially altered, and the course of the Hawash carried much further N. From the very friendly disposition of the King of Shoa, his capital seems a desirable place to establish a resident, in order to procure information respecting the interior both to the S. and W.; and I am happy to announce that Dr. Beke,

already known as the author of the "*Origines Biblicæ*," &c., has offered his services to go to that spot in order to obtain the requisite information preparatory to crossing Africa in that parallel.

And this brings me to an expedition from which we cannot but hope the best results, and in which I feel confident every geographer must take the deepest interest: I need hardly say I allude to the expedition up the Quorra [Kawára], under three of our colleagues, Captains Trotter, Bird Allen, and William Allen, the last of whom is well known to you as having first laid down correctly the course of that river. It has been proposed by Mr. Fowell Buxton, and other benevolent individuals interested in promoting civilisation among the Africans—to which her Majesty's government has liberally and promptly acceded—to send three steamers up the Quorra to the junction of the river Chadda, with a view to enter into treaties with the chiefs, &c. Once taught to cultivate the ground, and rendered sensible of the blessings of peaceful and industrious occupations, the Africans, it is hoped, will abandon the suicidal wars now incessantly waged, simply for supplying the foreign slave-trade, and, by their co-operation, enable us at length to effect the object which we have all so much at heart—the final and complete abolition of that dreadful traffic.

That this expedition will have a beneficial effect on the civilisation of Africa we cannot doubt; and if so, it will tend, indirectly as well as directly, to check that atrocious system which is the disgrace of humanity; and assuredly we may venture to hope for an ample harvest of great interest in the way of geographical discovery.

Preparatory to this expedition, Mr. M'Queen, already well known to you by his publications on Africa, has compiled a large map of North Africa from all available sources. This is now engraving under the superintendence of Mr. John Arrowsmith, and will shortly be published.

The work of M. Sabin Berthelot and Mr. Webb, on the Canary Isles, is still in course of publication at Paris: it furnishes an amusing exhibition of the very various forms which have been given to those islands by their numerous describers, and enters minutely into their botanical and geological productions.

Our corresponding member at Lisbon, M. de Macedo, has lately sent to us a notice on the Guanches of Teneriffe; a work which, though it may oppose the opinion of Dr. Prichard, evinces great reading and research connected with this interesting subject.

AMERICA.—Crossing the Atlantic to the New World, we come at once to the recent arctic discoveries, the account of which must be familiar to all my hearers. Nothing daunted by the dangers and difficulties experienced on a former voyage, those enterprising officers of the

Hudson Bay Company, Messrs. Dease and Simpson, again descended the Copper Mine River, and, pushing resolutely to the eastward, in spite of ice and gales of wind, succeeded in passing Cape Alexander of their former discoveries, and, sailing across a deep bay, reached a strait 3 miles wide, which led them out at its eastern end to the mouth of the Great Fish River explored by Captain Back in 1834; they then pushed on farther to the eastward, and reached their extreme point in $68^{\circ} 28' N.$, $93^{\circ} 7' W.$, within 180 miles of the western entrance of the Fury and Hecla Strait, and this distance is now all that remains to complete the shores of the continent of America; and we had lately within this room the gratification of hearing Governor Pelly state that it was the intention of the Hudson's Bay Company to prosecute their efforts till they had brought this problem to a satisfactory solution. We have therefore good reason to hope that England will have the glory of completing the stupendous work begun by Columbus; and that the north-west passage, first attempted by Cabot, a merchant of Bristol, will, after a lapse of upwards of three centuries, by a company of English merchants be brought to a successful termination.

The survey of the river St. Lawrence has extended to Anticosti; and the party under Captain Bayfield, R.N., are now surveying the gulf of the same name along the coast of New Brunswick and Prince Edward Island. We learn, from the eighth report of Mr. Hassler to Congress, that the government survey of the coasts of the United States is slowly going forward, and that the shores of New Jersey and Long Island, as far as Rhode Island and the country adjacent, are surveyed and ready for drawing. We are indebted to Major Graham, U. S., for a chart, in 4 sheets on a large scale, of Cape Cod, in Massachusetts, by Lieutenant Wilkes, of the United States navy.

The reports of the geological surveys of the various states, as Maine, Virginia, Pennsylvania, &c., contain much information in physical geography; and I may particularly mention the report of the state of Michigan, as giving, in the clearest form I have yet seen, the length, breadth, area, depth, and height above the sea, of the lakes of North America, which together, it is stated, contain upwards of 14,000 cubic miles of water, a quantity which may be considered more than half the amount of fresh water on the face of the globe.

Farther west, Mr. Townsend carries us to the Rocky Mountains. Prince Maximilian von Wied's travels in that country are in course of publication at Coblenz, and I am happy to learn that Mr. Ackermann will shortly publish an English translation of them, with all the beautiful illustrations which are now lying before us. In the mean time, Mr. Catlin has brought to our doors a collection of graphic drawings of the race of red men now fast perishing away—a series of portraits of high

interest even under any circumstances, but doubly so to us in an ethnographical point of view.

The Historical Society of Ohio has taken up the subject of American antiquities, and one of its members, Mr. Delafield, has presented us with an inquiry into their origin, which contains much novel matter and various facts tending to prove that a civilised nation possessed North America before the discovery of Columbus. Mr. Delafield's work is illustrated by a map copied from one existing in the Museum at Mexico, and which, it is said, represents the progress of a nation which appears to have peopled America from the north-west.

The survey of the West Indies is going forward under Captain Barnett, R.N., who has recently completed the survey of the Sisal Bank and the N.W. portion of the coast of Yucatan: his vessels are employed alternately, according to the seasons, among the islands or along the coast of Mexico and Guatemala. The want of a tolerable map of Mexico has lately been brought to the notice of the Society by Major Charters, R.A., who has also furnished us with an account of his routes from Zacatecas by Bolaños to Tepic, and again from Saucedo to Catorce, in which the physical geography of that elevated table-land is well described. Major Charters has also commenced a map of Mexico on a large scale, and invites the contributions of all travellers to enable us to make some attempt at a respectable delineation of that country.

Some points on the west coast of Mexico, as well as of Guatemala and of California, have been recently determined by the nautical survey of that coast now carrying on under Captain Belcher and Lieut. Kellett, R.N. These officers have also, we believe, visited the lakes of Leon and Nicaragua, and some of the islands in the Pacific. From the good supply of instruments and the known accuracy of the observers, there is little doubt but that the *Sulphur* and the *Lark* will bring home a valuable supply of fixed points upon the western coast, of which at present there is a great dearth.

We have recently had the pleasure of hearing Mr. Isidor Löwenstern's account of his journey across Mexico from Vera Cruz, by Tepic, to Mazatlan on the Pacific: he subsequently ascended Mowna Roa, in the Sandwich Islands, and visited the Celebes; and I have much gratification in announcing to you that Mr. Löwenstern will shortly return to Central America, intending to examine the magnificent ruins of Palenque, to explore the province of Chiapa, to visit the Lake Peten, and probably the peninsula of Yucatan. He is at present engaged in procuring the best instruments and in qualifying himself by previous study for the journey he is about to undertake; a journey which cannot fail to be of high interest, as there is hardly any part of the continent of

America with which we are so little acquainted. I am sure, gentlemen, you will heartily join with me in wishing health and success to this enterprising traveller.

Passing on to South America, we come at once to the country which Mr. Schomburgk by his recent explorations has made quite his own. I need not say that I allude to Guayana, a full account of which, in noticing the award of the Patron's Medal for 1839, I have already had the gratification of laying before you. Since the publication of Captain FitzRoy and Mr. Darwin's narrative of the voyages of the *Beagle*, and the admirable map of South America by Mr. John Arrowsmith, little has been added to our knowledge of that country, except Mr. French's account of the province of La Rioja and Captain Gosselman's journey from Cordova to Mendoza.

We have received from our corresponding member Don Pedro Angelis, at Buenos Ayres, the 6th vol. of his collection of documents on the provinces of the Rio de la Plata, which brings to a close (for the present only we hope) this excellent and laborious work. This volume, in addition to the memoirs by Malaspina, Viedma, and Azara, mentioned in a former annual address, contains Sourryère de Souillac's description of a new line of communication between Buenos Ayres and Chile; the pilot Villarino's diary of a voyage in 1781 from the Rio Negro to the Colorado; and also his examination of the Rio Negro in 1782, an abstract of which was communicated to our Journal by Sir Woodbine Parish in 1836.

M. D'Orbigny's great work on the natural history of the republic of La Plata and the Banda Oriental is still in course of publication at Paris; and we anxiously look for the narrative of Mr. Pentland's travels in Bolivia, which, to judge from the brief account he gave us last year within these walls, must be of great interest to all lovers of geography.

AUSTRALIA.—The progress of discovery and the march of colonization may be said to go hand in hand in the great island of Australia.

Scarcely have we received intelligence of the existence of a river flowing about 100 miles from the S.W., and falling into the sea at Shoal Bay, in 29° 30' S., when we hear that its rich alluvial banks have already become the station of numerous colonists.

At Port Phillip the town of Melbourne increases rapidly; and a chain of posts is established between that place and Sydney, a direct distance of about 400 miles, and the road considered so secure that it has already been travelled by a lady.

At Adelaide, on the eastern side of St. Vincent's Gulf, a city is rapidly rising, where a few years ago all was solitude: the track from

Sydney to this capital has become almost a beaten road for enterprising drovers with their flocks of thousands of sheep. Another town has been founded at Port Lincoln; and Mr. Eyre, already well known as a traveller, has just completed a journey from this port to the N.W., in order to examine Streaky and Fowler Bays, where it was thought probable an outlet of a river might be found, instead of which, however, Mr. Eyre states that the little water he met with in crossing the Port Lincoln peninsula all drained to the north. The Society is indebted to Colonel Gawler and to the South Australian Commissioners for a map showing all these routes, and for a vocabulary of the native language spoken in Adelaide district, drawn up by Mr. Williams. Governor Gawler adds, in his last letter, that so strong is the spirit of discovery that there are three gentlemen, zealous and well qualified, ready to start across the whole breadth of the island to Port Essington, if only provided with the requisite funds.

In Western Australia we have the track of Captain Grey, who, nothing daunted by the fatigues and privations he underwent on the N.W. coast, again set out in February, 1839, on an exploratory journey to Shark's Bay: while here his boats were wrecked in a gale of wind, and he and his party were compelled to make their way overland to Perth, a direct distance of 350 miles, through a country utterly unknown, during which they suffered extremely from hunger; and I lament to add that Mr. Frederick C. Smith, a young man of much promise, succumbed under the great fatigue to which his youthful frame was exposed.

Captain Grey reports very favourably of portions of land in this district. No hostility was encountered on the part of the natives; and he has by his inquiries established the important fact, that the same language is understood through a distance of upwards of 600 miles on this coast, a fact opposed to all the hitherto received accounts. Within these few days we have received from him a vocabulary of the language spoken in Western Australia, which this zealous officer appears to have studied with great diligence.

On the north coast the establishment of a settlement named Victoria, which stands on an eminence on the western side of the deep inlet of Port Essington, affords every prospect of being followed by beneficial results. A friendly intercourse has already been set on foot with the Bughis, the trepang fishers, as well as with the natives of the country and, from its favourable position with respect to the Asiatic archipelago, there is reason to believe this place may become of much commercial importance.

The nautical survey of the coast of Australia during the past year under Captain Wickham has been chiefly confined to the dangerous but

much-frequented channels named Bass and Torres Straits; but while these sheets are passing through the press we learn that he has recently discovered, and explored for a distance of 100 miles, two rivers which fall into the sea at the south-eastern angle of Cambridge Gulf, on the north coast.

In the mean time Captain Owen Stanley, in the *Britomart*, has visited Timor and Timor Laut, the Tenimber, the Kí, and Arru Islands, celebrated for the birds of paradise, and has correctly laid down many positions in this hitherto almost unknown archipelago; and Mr. Windsor Earl has given us much insight into the manners and customs of a harmless and well-disposed race of men, both from his own recent personal observations and by his translation of Kolff's voyage to the Moluccas.

The last voyage by our countrymen in these seas which I have to mention to you is too characteristic of the spirit that animates our yacht sailors not to command your attention for a few minutes. I need hardly say that I allude to Mr. James Brooke, who, in his yacht the *Royalist*, a schooner of 150 tons, fitted out and furnished with costly instruments, entirely at his own expense, has sailed to explore the Asiatic archipelago. Touching at Rio de Janeiro, the Cape of Good Hope, and Singapor, Mr. Brooke sailed for Borneo, and commenced a survey of the north-western coast, which he has carried on for 60 miles: he has also ascended the river Samarahn, never before mentioned, for a distance of 100 miles; held communication with the Dayaks, the natives of this country; and made a large collection in natural history. This enterprising sailor is still prosecuting his researches in Borneo, and will, we believe, before his return home, visit both Manilla and the Celebes.

New Zealand has recently excited much public attention; and since the energetic measures that have been set on foot to colonise that country there is little doubt that the progress of discovery will be rapid: the last accounts from the colonists describe them as having settled at Port Nicholson, a fine harbour at the southern extremity of the northern island; a plan of which, made by Mr. Chaffers, R.N., is just published by Mr. Wyld, and has been presented to the Society by the New Zealand Association.

On the Polynesian islands, M. Domeni de Rienzi has offered to our library his work, entitled "*Oceanie*;" and Mr. F. D. Bennett has just given us in detail the results of a whaling voyage round the globe, in which are recorded the observations of an indefatigable and accomplished naturalist. The Society was already indebted to Mr. Bennett for an abstract of this voyage, published in its *Journal* for 1837.

Time would fail me were I to attempt to describe either of the great foreign voyages of circumnavigation now in progress, both from France

and the United States of America: suffice it to say that the expedition under Commander Wilkes had, at the date of the last accounts, reached Sydney, in Australia, and that of M. Dumont D'Urville had arrived at Van Diemen's Land; and by a letter recently received from Sir John Franklin we learn that Captain D'Urville had on the 1st January sailed to the southward in hopes of discovering the position of the south magnetic pole.

But I cannot conclude this brief account of the progress of discovery without directing your attention to the Antarctic Ocean. Discovery there during the past year has been far from barren in its results. We are again indebted to that spirited merchant Mr. Enderby, and some of his brother merchants, for an expedition sent out in 1838, under the command of Mr. John Balleny, which made the discovery of a group of islands in $66^{\circ} 44'$ S. lat., and sailed through 80° of long. (within the parallel of 60°), which had not hitherto been passed over by any navigator; but this, we trust, is only the forerunner of the expedition under Captain James Ross, R.N., which has recently left our shores; and, although this latter expedition is mainly fitted out with the object of deciding the great problem of terrestrial magnetism in the southern hemisphere, and its attention will be chiefly directed to this branch of physical geography, we cannot but hope it may also do much in the cause of antarctic discovery, and conclude with the earnest wish that the well-known zeal and ability of the gallant commander may be crowned with success, and that he may safely return to his country and his friends, to receive the well-merited reward of his toils in the applause and esteem of all civilised nations.

In stating to you the progress of Geography during the past year, I have thought it necessary to defer the consideration of a question which must now be brought distinctly before you—the *previous question*, “What sense does this Society affix to the word Geography?” The question is not new to you: I am aware that it has been treated before, and with great ability; still there are in society different opinions afloat, and if we are to act in concert it is necessary that the subject should be brought again and again under your consideration until those opinions coalesce. I shall therefore, with great deference, submit to you the sense I attach to that term, which is the bond of our union, and the interpretation of which determines the nature of those obligations which, as members of this Society, we are bound to perform.

Geography is either simple or compound: simple geography, in the sense which I wish to affix to that term, is a science; a science, the

object, the sole object, of which is to investigate the origin, substance, form, dimensions, properties, capabilities of the earth in gross and in detail—its actual condition, its past history, its future prospects.

The several members of the solar system—caloric, light, the galvanic, magnetic, electrical fluids, the various gases, the winds, the tides; all these either enter into the composition of the earth or sensibly and continually act upon it. All these then belong to simple geography.

Plants and animals in their fossil state constitute no inconsiderable portion at least of the crust of the globe. Coral islands are actually forming—the surface of the land undergoes, day by day, various modifications produced by the agency of man: lakes are drained, hills lowered, valleys filled up, rivers deepened, bays produced by human industry and contrivance—the earth is quarried for the supply of our dwellings and the construction of our roads—the adventurous miner plunges deep below the surface in search of coal and the metallic ores. We contend with the earth during our entire lives, and amalgamate with it afterwards. Simple geography is not limited then to the contemplation of inorganic matter. Life, both animal and vegetable, necessarily belongs to it. In respect to simple geography, the common centre to which all our observations and reasonings should tend is the earth—the terraqueous globe. All physical objects whatever are included within the circumference of the circle which I have ventured to describe—but physical objects only. Moral considerations are without it: the animal part of man belongs to simple geography—not so the intellectual. With man, in his social, civil, political character, simple geography has no concern.

Gentlemen, in claiming for Geography everything which belongs to the earth, I have brought within its circle much that is usually comprehended within that of astronomy, natural philosophy, and geology. My justification must be, that every part of Nature is in close connexion with every other part; and that the several sciences, notwithstanding all our attempts to separate them, will often intersect.

Having assumed the title of the Geographical Society, I cannot but put in our claim to investigate every subject which is connected directly or indirectly with the earth; at the same time I feel it due to those Societies which without assuming that title have successfully applied themselves to the prosecution of a part of those duties which we, in assuming it, have engaged to perform, that we should appear before them in the light, not of rivals, but of allies, and rather urge them to persevere in the same course, by allowing our claim to be in abeyance, than throw any obstacle in their way: those parts of Geography which are cultivated we may still leave in the hands of those

who first brought them into cultivation; our utmost exertions, be assured, will not be more than sufficient to fertilise the fallows.

It is to be regretted that in common parlance the world and the earth should be considered synonymous; for the want of precision in language tends always to produce a confusion of ideas.*

In contradistinction to simple Geography, I use the term compound Geography to express those various combinations of a study of the earth which are designated by the denomination of—political, civil, statistical, ethnographical, philosophical, chronological, classical, scripture geography, &c.

The leading distinction between simple and compound Geography is this, that the one is a branch of physical science only—the other, a mixture of sciences.

With a view to the successful cultivation of simple Geography, I consider essential—1. A systematic classification of all the objects which belong to it. 2. A precise and fixed terminology. 3. A good nomenclature.

By these three contrivances Linnæus, Jussieu, Lavoisier, Cuvier, Lamarck, Werner, Haüy, &c., have given to the sciences which they respectively cultivated, or almost created, an impetus which they can never lose till they arrive at perfection itself;—let us apply the same treatment to Geography.

CLASSIFICATION.—Numerous attempts were made in the very infancy of geography to combine mountains into chains, ridges, groups; and these attempts have been renewed by each succeeding generation up to the present time: being premature, it is not surprising that they should have proved abortive. Many of these combinations, in default of the requisite knowledge, have been purely conjectural; all have been derived from insufficient data. The *mountain-chains* of Buache traverse without let or hindrance both land and sea; and of those which rise above the surface of the waters, we know not what amount of rise is required in other systems in order to entitle them to the same appellation: nowhere do we find laid down any fixed principle to mark the bond of connexion between the several parts of these chains, or to determine how the supposed connexion begins or ceases. In the orographic map of Soriot de l'Hoste (a map of no ordinary pretensions), mountain-

* The habitable world I consider to be an incorrect expression; when we speak of a map of the world, as known to the ancients, we refer, I imagine, not so much to the earth as to the people who inhabit it. In this sense we speak of—the political world, the intellectual world, the moral world, the fashionable world. The Greek word *γῆ* means sometimes land; as employed by us, it means the terraqueous globe, but not the world.

ridges and watersheds are supposed to coalesce, whence it follows that the surface of Russia exhibits as many furrows as that of Switzerland. The ablest system of orography (that for which a medal was justly awarded to M. Bruguère by the Geographical Society of France), with all its merits, is open to many and grave objections. Need I observe that the classification of seas, rivers, lakes, bays, promontories, plains, valleys, and every other description of objects in physical geography where classification exists, stands equally in need of reform?

TERMINOLOGY.—The terminology of Geography is in most languages redundant rather than defective; the terms are very numerous and generally very good; all they want is precision. In countries like England, where no provision is made for maintaining the purity of language by Government or by any philosophical establishment, there is a strong tendency in words to fall off from their original meaning, and to become indefinite. In the Celtic languages the words *ben*, *pen*, *croheh*, *carn*, *carreg*, *bron*, *drum*, *mynydd*, *slieve*, *moel*, each expressed not merely an eminence, but an eminence of a specific form, or having a peculiar character. In modern English the words *hill* and *mountain* are used almost as synonymous, and to express the specific characters we are obliged to resort to phrases. In like manner we have lost in English all power of designating, by a single short word, all those various modifications of valleys which were conveyed by the words *den*, *glen*, *dingle*, *strath*, *comb*; it is highly desirable that we should endeavour, if possible, to recover some of these lost forms of expression. The subject of terminology has already been brought under the notice of the Society, by Colonel Jackson, in a paper which will be found in the IVth Volume of the "*Geographical Journal*," and will, I hope, during the ensuing year, engage the deliberate attention of the Council. The old Celtic terminology, being composed almost entirely of monosyllables, is singularly applicable to the construction of an expressive and appropriate nomenclature.

NOMENCLATURE.—Gentlemen,—In an address of your Secretary, in Vol. VIII. p. 260, of your Journal, he notices a paper by Captain Vetch, on Australia, as well worthy of serious consideration, and expresses a hope that geographers at least will exert their influence in rescuing that country from the barbarous nomenclature that is daily gaining ground, and which, if not checked at once, will become so firmly established that it will be nearly impossible to eradicate it.

I am sorry to observe that this barbarous nomenclature still rages uncontrolled; it is an evil which has increased, is increasing, and ought to be diminished.

The first great evil which I shall point out to you as connected with this subject is the appropriation of the same name to objects of the same kind, but situated in different, sometimes in very distant, parts of the globe. The county of Cumberland, for instance, is situated not only in the North of England, but also in Australia, in the State of Maine, of North Carolina, and of Kentucky; so the county of Northumberland will be found in Australia, Virginia, and New Brunswick; there are very few of the English counties which are not in the same predicament. Washington is the name of a province in the States of Maine and Rhode Island. In New York, Pennsylvania, Maryland, Columbia, Virginia, Georgia, Ohio, Kentucky, Illinois, Missouri, we find this same name applied to a town; and from Mitchell's map we learn that this name is applied to no less than *one hundred* places in the Union.

In the United States of America there are five provinces of the name of Jefferson and Maddison, ten of the name of Franklin; Montgomeryshire is to be found in Pennsylvania, Maryland, Virginia, Alabama, Tennessee, and North Carolina; nine towns are distinguished, or confounded, by the name of Athens, ten of Alexandria, thirteen of Manchester and Newmarket. The name of Melville has been echoed from cape to cape, from bay to bay, from island to island, till it has attracted the ridicule of every geographer.

The next source of confusion which I shall point out, with a view to its discouragement, is the right which geographers assume to translate or not to translate those names of places or objects in other countries which happen to have a determinate signification:—*Bipont*, *Deux-ponts*, *Zwei-brucken*—the *Black Forest*, *le Forêt Noir*, *Schwarz-wald*—*Ile-de-Pâques*, *Easter Island*—*Anguilla*, *Snake Island*.

The third abuse of geographical language which deserves to be watched is the practice of giving to objects different names from those which are given to them by the inhabitants themselves, as England, Angleterre, Inglaterra; Deutschland, Germany, Allemagne; München, Munich, Monaco.

The aboriginal names of any language are for the most part expressive, being compounded of syllables the sense of which conveys to the mind of those conversant with the language the peculiar character or distinctive quality of the place or object so designated. This good old practice cannot be too strongly recommended to those who have to invent and affix names to newly-discovered objects in the present day. I would further recommend, where practicable, that the syllables selected to compose the name should be taken from the language of the country. This would not only give to the vocabulary of geography a much greater variety and copiousness than can be obtained from resorting always

to the same language, but assist the memory; since the sound or sight of the name would suggest the locality of the place. No one on hearing the name pronounced for the first time would doubt that Whang-ho, Wo-chou, Quang-han were in China; but it does not occur as readily to the mind that Theopolis or Philipolis is to be found at the Cape of Good Hope, Jericho in Van Diemen's Land, Athens in Alabama, or Sparta in Connecticut.

Durability is a quality extremely desirable; and, although it is mere pedantry to change even absurd names when they have once been generally received, yet in devising new names it is advisable not to hold out any temptation to change: this applies more especially to political and national names, which, however grateful to the parties by whom they are given, are apt to excite national jealousy in foreigners, or give rise to party feelings in individuals. The name of New Holland, for instance, is no longer used at our government offices; foreign astronomers rejected with indignation the name of Georgium Sidus; nor have the French thought proper to adopt the name of the English Channel. So jealous are botanists of transferring to plants the names of any persons but botanists, that they have refused to admit among the genera in their system the honoured names of Bonorota, Chaptalia, Hippocratia, Cartesia, and Blumenbachia.

It has been long a practice throughout civilised Europe to transfer to persons the names of their real or supposed estates or homes, and it is not to be wondered at that by a counter-process places in newly-discovered countries should receive names or titles from persons. This practice is now too universally established to be checked, if it were desirable to check it; but it seems not impossible to regulate its application in some degree (if it should be thought to require regulation), since names given by individuals cannot be introduced into maps without the consent of geographers. But by far the greater number are not given by individuals, but by some department of government, or persons acting under such department. I would beg leave to suggest, in reference to this practice, the following brief observations:—

1. That the value of complimentary names varies inversely to their frequency.
2. That these names can confer no honour on any party if they emanate from favour, flattery, or caprice.
3. That it would be desirable that some proportion should be observed between the dignity of the person and the dignity of the namesake: the name ADELAIDE should not be given to a shoal, nor that of VICTORIA to a marsh.
4. Where names are selected which have no natural or obvious con-

nexion with the spots to which such names are annexed, it would seem desirable that the names of the same district should observe a certain harmony and congruity one with another. A group of Scotch names would be more appropriate to New Caledonia or Nova Scotia than to New South Wales, whether situated on the eastern coast of Australia or on the south of Hudson's Bay. In the state of Massachusetts we find Ashburnham, Dudley, Lancaster, Leominster, Oakham, Oxford, Petersham, and Uxbridge, all in Worcestershire. So we find Abingdon, Duxbury, Halifax, Kingston, Plympton, Rochester, Pembroke, all in the province of Plymouth; Andover, Beverley, Gloucester, Haverill, Ipswich, Lynn, Middleton, and Salisbury, all in the province of Essex. In Van Diemen's Land the hills have been given to Hampshire and Surrey, the plains to Middlesex and Norfolk. The province of Ohio is not in the state of Ohio, but of Kentucky. Indiana, a province of Pennsylvania, is one of the states of the Union. In Alabama, Washington is the name of a province as well as a town, but the town is in the province of Asturga; the Kentucky Washington, again, is not in the province of that name, but in the province of Mason. A momentary glance at a map of the United States of America will afford many amusing examples of geographical inconsistency.

5. Where the names of professional persons are adopted, it would appear more natural if some relation were observed between the nature of the profession and of the object named. The name of a distinguished general would be better applied to a fortress than to a lake; the name of a judge to a province than to a river.

6. There is one principle which should never be lost sight of in nomenclature—the value of conciseness. Without attention to this circumstance a name may be given to a village which, on a map constructed on a small scale, would extend over a whole country. All writing in maps is an evil, though a necessary evil; and it is desirable to confine the quantity of it within the narrowest practicable limits. Though we ought not to change lightly native names, yet it can hardly be desirable that in the names of the provinces of Sumatra we should long continue to find “Sapulobuah-Bandah; Pasummaho-Cumaña.”

7. In adapting the names of persons to places it is further desirable to bear in mind the meaning of the final syllable. The term *Mel-ville*, for example, would be applied more naturally to a town than (as it has been applied in Australia) to a mountain. *Master-ton* might just as well have been given to the capital of a settlement as to a range of mountains. Where the terminating syllable of a proper name expresses a physical object, it would be a praiseworthy economy to confine its use to that object, applying the other syllables, with other ter-

minations, to the district at large. In this manner the position of the different objects would be guides to one another: thus we might have *Welling-ton*, *Welling-vale*, *Welling-river*, *Welling-ford*, *Welling-burn*, *Welling-hurst*, &c. &c.

When simple Geography, or the study of the earth, itself enters into combination with the study of any other subject, there results a new science. What I have called *compound geography* is a cluster of such sciences, every one of which requires a separate classification, terminology, and vocabulary; all these vocabularies entering into what I have called geographical nomenclature.

Words following words in long succession, however ably selected those words may be, can never convey so distinct an idea of the visible forms of the earth as the first glance of a good Map. Of all contrivances hitherto devised for the benefit of geography, this is the most effective. In the extent and variety of its resources, in rapidity of utterance, in the copiousness and completeness of the information it communicates, in precision, conciseness, perspicuity, in the hold it has upon the memory, in vividness of imagery and power of expression, in convenience of reference, in portability, in the happy combination of so many and such useful qualities, a Map has no rival. Everything we say or do or think has reference to place; and wherever place is concerned a map deserves welcome: there is scarcely one department of knowledge, physical or moral, beyond the sphere of its usefulness; to geography it is indispensable.

To increase the number and improve the quality of Maps is, I conceive, among our first duties, and, I hope, among our most earnest desires. When I speak of increasing the number of maps, I speak not of individuals but of species; what I would wish to remedy is not so much their paucity as their sameness. How few, how exceeding imperfect are the maps hitherto constructed in illustration of simple geography! Where shall we find engraved a complete series of the several mountains which stretch over, I will not say continents, but individual kingdoms? Of maps professedly orographical, where are the heights shown in their true form and just proportions? Where is to be found any approximation to a complete entry even of their names? And yet without many such maps, and upon a large scale too, and unencumbered with other objects to distract attention, it seems impracticable to acquire an adequate idea of the physical forms of the surface. So, too, in respect to valleys. How rare have been the attempts to express by mapping the different features which these exhibit in different parts of their

course; the flatness or inclination of their bottom; the gradual slope or sudden steepness of their banks; the depth of their cuttings; their expansions and contractions; their concavities and convexities; their salient and re-entering angles! These are subjects of high interest to the geographer, but hitherto almost wholly disregarded by the map-maker.

An ample series of Maps upon a sufficient scale, designed exclusively for the service of simple geography, deserves to be placed in the foremost rank of our desiderata.

The mode in which the physical constitution of Wales has been treated in a map which I had lately the honour to present to the Society will explain to you, imperfectly indeed, yet more readily than description, the views I entertain as to the mode in which such a *series* ought to be conducted. Among the peculiarities of that document I may mention that the mountains have been all carefully shaded to scale; that the engraving of a single name was not begun till that of the whole landscape was completed; that in making subsequent insertions the integrity of the landscape was jealously guarded; that every name, before it was admitted, underwent examination with reference to the purpose which it had to serve; that no river or mountain, of which a name could be discovered, has been permitted to go unnamed upon the map; that the names of rivers are inserted, not only at their mouths but at their bifurcations, unless when special reasons justified or required their omission; and that the names of the mountains have, by virtue of a short reference, been all transferred from the body of the map, where they would damage the plan-work, to the margin, where they are perfectly accessible, and at the same time perfectly harmless.

Simplicity is essential to excellence, whether in science or in art: every map should have a determinate object, and be to the geographer what a diagram is to the mathematician—it should contain just as many names, lines, and signs as are necessary, and not one more. Suppose the diagrams in Euclid were not separate, but heaped one upon another, so that the same figure would apply to every proposition;—would not the student find this an intolerable grievance? Amid so many tangles, how could we obtain the proper clue? Mystification must be the result.

When we consider the genius required to invent and compose a map varying in principle as well as in detail from its predecessors, and constructed solely for the illustration of one particular branch of geography—when we consider the industry with which the materials are to be collected, the judgment with which they are to be sifted, the discrimination with which they are to be classed, the skill with which they are to be combined, the taste with which they are to be expressed,

the accuracy which is to be exemplified in the plan-work, the experience wanted in the engraving, the number of unsuccessful experiments which must be made before any one is successful, the weariness of correction,—it is little to be wondered at that few maps of this description ever come into existence. Governments do not undertake them, nor scientific societies, nor joint-stock companies; all is left to individual exertion. And what encouragement have individuals to embark in such undertakings but the pure love of science for its own sake? Maps of this description cannot be brought to day without an outlay of capital such as few philosophers can command. Two or three of them would furnish occupation for many years; and, when at length they are completed, in what way are they to be circulated? The publishers of maps (few in number, and almost all Londoners) have no extensive connexions as booksellers have. They are, besides, almost all authors as well as publishers of maps, whose interest it is to keep out of the market any articles that threaten to interfere with the sale of their own. It is well known that the Ordnance Map of England, notwithstanding its acknowledged excellence, could never overcome the passive resistance opposed to it by the trade till a shop was opened for the sole purpose of bringing it into notice. Even with this advantage its sale has been extremely limited. Maps generally excite so little interest in the lovers of every other description of literature, that they are seldom or never chosen as subjects of criticism in Magazines or Reviews. Noblemen and gentlemen, whose libraries are regularly supplied with every book, even of moderate excellence, almost immediately after it has quitted the press, take little heed of maps, any one of which contains, for the most part, more abundant and more accurate information than a long range of quartos can supply. Book societies are equally ill provided with them. The several offices of government, in which one would suppose a ready access to geographical information would be daily if not hourly wanted, are so little self-indulgent in this respect, that you rarely find there even a valuable map of the country or countries which fall more immediately under their care or guidance. The collections of foreign maps at the Foreign, or colonial maps at the Colonial Office are meagre in the extreme. It happens in regard to this as to every other commodity, that the want of demand and want of supply act upon each other reciprocally as cause and effect. The lack of sale of the Ordnance Maps is the more remarkable because these maps are not addressed to students of a particular class, but designed to satisfy all tastes; nor is it less remarkable that the very sensible reduction of their price which was resolved upon some time since, with a view to extend the sale, has, I believe, not had that effect; the sale having actually fallen

off since that reduction. The Society for the Diffusion of Useful Knowledge, acting upon the same principle, have succeeded so far as to obtain for the maps published under their direction a very extensive circulation; but, as far as I am able to learn, they have by no means spread a taste for maps among the people at large, but only introduced among those who before had that taste a desire to save their money, by disregarding excellence when placed in opposition to cheapness. The bait thrown out to frugality, in this case, has no doubt in some degree been beneficial, by putting better maps into hands that would otherwise have been content with worse or none at all; but it has also acted inversely, and rendered many persons content with worse maps who would otherwise have been willing purchasers of better. The double competition now established by two bodies so effective as the Ordnance Office and the Society above named increases the risk, or rather the certainty, of failure to which adventurers are exposed, who, for no other object than the improvement of geography in general, or its adaptation to specific purposes, aspire to introduce into maps sounder principles of construction, and bestow upon them greater powers of expression.

The improvements which take place continually in the mechanical arts would, under more favourable circumstances, be applied to the use of the map-maker much more promptly and extensively than they are at present.

Many processes which are at present confined to the engraving of landscape and figures, such as mezzotinto and aquatinta, might, on different occasions, be usefully resorted to for the representation of ground. zincography, lithography, wood-engraving, and printing with moveable types, might be rendered more efficient auxiliaries to us than they are at present. The transfer of engraving from paper to stone, and from copper to steel, might be employed advantageously in some cases; stenciling and colouring by blocks, in others; shadows produced by dots or lines of various patterns, and of different intensities, would greatly heighten the expression of maps, and they might be used to convey an endless variety of ideas. Much might also be effected by the employment of paper wholly or partially transparent. These and other processes would be already in general use but from the unfortunate indifference with which maps are regarded.

The last obstacle to the improvement of mapping consists in the insecurity which attaches itself to that description of property. The law, as it at present stands, gives to copyright no more than a delusive show of protection; the temptation to piracy varies directly as the merit of the original, and a lithographic press will produce in a few hours, and

for a few shillings, the counterpart of that which has been the slow and expensive acquisition of years.

How far it is in the power of this Society to suggest or apply a remedy to the various evils which I have now, perhaps somewhat tediously, specified, I do not know. I have myself none to propose; but, believing that the map is, of all the instruments in our possession, by far the most valuable and effective, it seemed to me desirable that I should call your attention distinctly to the subject; and I cannot but hope that, the reality and extent of the mischief being once laid before you, the antidote is not far distant.

We have now (thanks to the liberality of the Trustees) a complete catalogue of the MS. maps, charts, plans, and views contained in the British Museum, including those in the library of George III., drawn up by Mr. Holmes, of the MS. department of that establishment. This gentleman is also engaged in preparing a bibliographical notice of all ancient maps of which notices are dispersed through the various geographical works, which will be of great service to the lover of cartography. At St. Petersburg also has been just published a catalogue by Adelung of all the old foreign maps in which Russia is represented, from the year 1306 to the close of the seventeenth century.

M. Jomard, Conservateur of the Bibliothèque du Roi at Paris, is also engaged on a catalogue of the MS. maps in that rich establishment, which contains, among other precious geographical monuments, the celebrated *Cartes Catalanes*.

As connected with this subject, I cannot omit to mention a letter recently read before this Society, in which Mr. Holmes gives his reason for questioning the accuracy of the date usually assigned to these maps, namely 1346. This letter has been courteously replied to by the well-known eminent geographer, M. d'Avezac, who, admitting the force of many of Mr. Holmes's objections, asserts that the said map must have been of the date of 1375, as it formed part of the library of Charles V. of France: to which Mr. Holmes naturally replies, "Where is the evidence that this map is the same?" The presumption is that it cannot be the same map, as it is well known, and stated by all French authorities, that that library was either sent to England or dispersed. The question of their date therefore still remains undecided.

The only other remark which I shall offer on the subject of maps is, that the good fellowship which happily subsists between this Society and similar establishments in other parts of the world affords increased facilities for the substitution of general rules for national peculiarities. The geographical mile ought to be the only one recognised by geographers.

The scale of every map should be expressed after the same fashion whether we chose to adopt the mile just mentioned, or, as it is termed, the natural scale. In like manner, all longitude should be reckoned from a common meridian.

In last year's address Mr. Hamilton alluded to a revision of the principal maritime positions, or an attempt to combine, as far as possible, the existing evidence into a connected system, by Lieutenant Raper, R.N., for the purpose of constructing a table for his work on navigation. Several papers have appeared in the *Nautical Magazine* for 1839, in which the author has carried his work through Europe, the Atlantic, West Indigs, and South America; and the completion of the series is, we understand, shortly to be expected.

Those who have perused any of these papers cannot fail to be aware that the great obstacle to producing that systematic connexion among the several places which is a point of paramount importance to the interests of navigation arises from the want of noting distinctly the actual results of observations and differences of longitude. The usual custom of giving merely the gross results deprives the compiler of all means of proceeding analytically by comparing the relative value of different determinations, and leaves him no alternative but to involve each succeeding determination in a mean with all the preceding, by which the whole is kept perpetually in a floating state. I therefore earnestly recommend all navigators to abstain from this vicious system, and entreat them to give their meridian distances honestly to the world, without mixing them up with the labours of their predecessors, if they would not see hydrography retrograde, and our tables of position fall into inextricable confusion.

To obviate the inconvenience arising from the various measures of height adopted in different countries, M. de Candolle has suggested the use of a centigrade scale which would be applicable to all: the highest known mountain of the globe being represented by 100° , and all others by some fractional part of this number.

I cannot conclude this address without alluding somewhat more distinctly than I have hitherto done to the labours of the Society, the use we make of our acquisitions, and the result of the ten years' experience which we now possess of its working and organization.

Some of our members have from time to time expressed an opinion that we ought already to have raised Geography to the rank which she is entitled to occupy—that of a real Science; that the data we have collected should ere now have been compressed into a tabular and sys-

tematic mould, so as to be available at a moment's notice to any one who might wish to consult them; and further, that it was our duty to confine ourselves to details strictly geographical, without any admixture of historical research, any ethical or political interpolations.

Gentlemen,—In the observations which I have this evening had the honour to address to you I have given, I trust, a sufficient pledge of my attachment to system. Gladly shall I hail the dawn of that day when, not content with devouring information, our main object shall be to digest it; when our harvest shall not only be well housed, but well winnowed, and the good corn effectually separated from the tares, the straw, and the chaff.

No one is more sensible than myself of the delight, not to say the glory, of being able to trace effects to their causes, and, by long meditating upon well-ascertained facts, to establish at last general conclusions. Thankfully will I accept, and fervently do I desire, the co-operation of every geographer who is willing to direct his services to the attainment of that desirable end. This, I have no hesitation in admitting, constitutes the noblest part of our duty; but still only a part, and not that perhaps which most clearly proves our usefulness, or most effectually guarantees our success. Societies, like individuals, entertain different feelings, opinions, and desires, at different periods of their existence. Geographical science, as it becomes more generally known, will be more generally and deeply respected; but it is not known sufficiently at present to render it prudent to make it the sole object of pursuit. The desire of novelty, the ambition of discovery in general, without reference to the specific kind of discovery, has hitherto formed so marked a feature in our character, and contributed so largely both to our usefulness and gratification, that it would be in my opinion a highly dangerous experiment to confine our studies to geography, strictly so called.

The Geographical Society, be it recollected, traces its origin to an association of travellers rather than geographers; and we should ill deserve the liberality which was shown to us in the first instance by the African Society, and afterwards by the Palestine Association, if, in absorbing their funds, we had not also imbibed a portion of their spirit, and do not still endeavour to carry out the objects for which those funds were originally designed. Every encouragement, therefore, consistent with the means of the Society, has been held out for exploration and discovery. The medals placed in our hands by royal munificence have been constantly bestowed upon those who have signalised themselves by merit of this description; and we have unscrupulously admitted into our Journal a variety of intelligence which we thought would be interesting

to the public, without too nicely examining its relationship to the main purposes of our institution. In this course we have received the approval of her Majesty's government, and have obtained a degree of popularity which never could have been acquired had we been less latitudinarian.

In proof of the estimation in which the Society is held, I may refer not only to the extensive sale of our Journal, but also to the numerous applications (two of them I have already adverted to) which we have received from individuals, to travel under our auspices, and in compliance with our instructions, in distant and unexplored countries. The dangers and difficulties which formerly deterred men from such enterprises are fast disappearing, and the facility with which communication is now carried on throughout the globe tends greatly to invite a spirit of adventure. Extended experience also has shown that the risk has been not a little exaggerated. How trifling has been the loss of life in the several expeditions to the polar seas! Mr. Schomburgk's example has proved to us that, with prudence and temperance, an European may pass years in the burning forests of the Tropics, without any permanent injury to his constitution. Mr. W. I. Hamilton and others have wandered unscathed through large portions of Asia Minor, depopulated by the plague. Mr. Holman, though deprived of sight, has visited every quarter of the globe, and returned in safety to his native country to tell us of his manifold adventures.

Where loss of life and want of success have occurred, I believe it may be ascribed, in most instances, to the neglect of proper precautions, to inexperience, ignorance, carelessness, or a contempt for the opinions of others, even those best qualified to advise.

But, Gentlemen, I feel that I have already trespassed too long upon your time. I conclude, therefore, by thanking you for the attention with which you have honoured me, on an occasion upon which I could hardly have expected so indulgent an audience, and by expressing to you my earnest hope that, if it should be my fortune to address you on the next anniversary, I may then be enabled to announce to you discoveries of still higher interest, and bring before you still more conclusive evidence of your usefulness and success.

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CORRIGENDA.

VOL. IX.

Page 56, line 4, Major Rawlinson's further researches have shown that the tomb of the Khaliph Mehdi was near Mendállí, at the northern extremity of the province of Másabadán, instead of at Rúdbár, as conjectured.

— 87, — 7, Also that the castle of Lethe was at Dizful, and not at Sásan.

— 87, 88, 93, *for* Nestorian *read* Christian.

CONFIDENTIAL

1. The first of the three main points in the report is that the Government has failed to provide adequate protection for the rights of the people. This is a serious failure, and it is the duty of the Government to rectify it. The second point is that the Government has failed to provide adequate protection for the rights of the people. This is a serious failure, and it is the duty of the Government to rectify it. The third point is that the Government has failed to provide adequate protection for the rights of the people. This is a serious failure, and it is the duty of the Government to rectify it.

PAPERS READ

BEFORE THE

ROYAL GEOGRAPHICAL SOCIETY.

- I.—*Notes on a Journey from Tabriz, through Persian Kurdistan, to the Ruins of Takhti-Soleimán, and from thence by Zenján and Tárom, to Gilán, in October and November, 1838; with a Memoir on the Site of the Atropatenian Ecbatana.* By H. C. RAWLINSON, Bombay-Army, Major serving in Persia. Communicated by Viscount PALMERSTON.

IN the month of October, 1838, I set out from Tabriz, to travel to Gilán, by the route of Persian Kurdistan and Khamseh. My chief object in following this circuitous track was, to obtain data for the identification of the Atropatenian Ecbatana, a city of whose existence I had been long persuaded, but of which, without a correct knowledge of the topographical features of Southern Azerbiján, I could not venture to assign the representative in modern geography. Aware, also, of the incompleteness and, perhaps, of the incorrectness of the maps hitherto published of this part of the country, I was not inattentive to my road-book. With a watch and compass, I observed the distances and magnetic bearings along the entire line as accurately as I was able, and from these I have laid down the route which accompanies my memoir.

October 16th.—I left the British camp, on the south-western outskirts of Tabriz, and rode 7 miles to the village of Sirdárúd, in a general direction of S. 72° W. At 2 miles I passed to the left the little village of Lálá, containing a summer-house and garden, whither the idle Tabrizis repair frequently during the spring and summer, to pass the day in feasting and merriment; there is also a mineral spring near this place, which is supposed to possess certain medicinal properties; the temperature of the water, in summer, is nearly that of the surrounding atmosphere, but, in winter, it retains a considerable degree of warmth, which

has given it the name of *I'sí Sú*, or the hot water. In former times it was used by the *Tabrizis* as a bath; a basin was constructed to hold the water, and over this was erected a small square building for the accommodation of the bathers; both these works, however, are at present dilapidated, and there is no appearance of comfort or privacy. The high ground above the spring commands a fine prospect of *Tabriz*, which, surrounded with a forest of orchards, gives an idea of immense extent. The whole circuit, indeed, of the gardens of *Tabriz* cannot measure less than 30 miles. The road to *Sirdárúd* skirts to the left the low hills which form the southern boundary of the great *Tabriz* plain, and upon the right is seen an immense level flat, stretching away to the margin of the salt lake farther than the eye can trace its features. At this season of the year the plain presented a less desolate appearance than usual, the peasantry being employed in some numbers in sowing their autumn grain, and thus lending a faint glow of animation to the otherwise most dreary scene. *Sirdárúd* is a flourishing place, situated on a small stream, which flows from *Sehend*, and gives its name to the village and district. The gardens and orchards which surround it, along the foot of the hills, are of great extent, but still they can afford only a faint idea of the former richness of the district, when the suburbs of *Tabriz* stretched out as far as this place, and the whole country was covered with such a forest of trees, that it was difficult to distinguish the boundaries of the respective villages.*

17th.—From *Sirdárúd* I made a stage of 22 miles to the village of *Gogán*. The road conducts across the plain for 12 miles, in a general direction of S.W., to the village of *Ilkhijí*, the low hills to the left running along at an average distance of about 1 mile, and the great plain, as before, to the right, stretching down to the shores of the lake. Along this tract, the plain is cultivated throughout, and many villages are seen scattered about. One of these, situated in a glade of the hills to the left, at the distance of 8 miles from *Sirdárúd*, is of considerable extent; it is named *Khosraú Sháh*, and is one of those many happy spots along the skirts of *Sehend* enjoying, at all seasons, a most delightful climate, and owing its fertility to the streams of this most beneficent of mountains.

The vale of *Khosraú Sháh*, as far as the eye can reach up among the hills, is one mass of groves and gardens, and almost realises the picture of sylvan beauty which is described by the geographers, and which caused the spot to be associated, in former times, with the four other paradises of Persian poetry—the valley of the *Soghd*, at *Samarkand*; the *Ghútah*, or plain of

* See *Noz-hetu-i-Kolúb*.

Damascus; the Sha'abi-Bowán, near Kal'eh Sofid, in Fárs; and the glade of Máshán-rúd, at Hamadán.*

Khosraú Sháh is included by Abúlfedá in his catalogue of the cities of Azerbáján, and would seem, therefore, anciently, to have been a place of far greater consequence than at present.

Ilkhíj, where I breakfasted in a vineyard, is an inconsiderable village, to the left of the road; the name is misprinted Itk'his in Colonel Monteith's map of Azerbáján.

At 1 mile from this place the road leads round a long point of the low hills, called by the Tabrizis Linzí Búrní, and then stretches across a flat open chemen (meadow-land) in a direction of S. 20° W. for 9 miles, to the village of Gogán. At the point of the hill the road divides, one track turning off to the left, and running along at the foot of the hills to Dekergán (properly Dehí-Kherkán, or Dehí-Khwárkán), the capital of the district, and the other, which I followed, conducting direct to Gogán.

Gogán is one of a cluster of villages dependent upon Dekergán, from which it is distant about 5 miles; like all the other places in this part of the country, it is surrounded with a belt of gardens, through which the traveller has to thread his way for above 1 mile before he reaches the hamlet in the centre.

It has suffered much from inundations; twice, within the last ten years, a torrent has come down from the mountains, and swept away all the buildings upon the banks of the little stream that flows through the village, but it seems now to be again in a flourishing condition. That the village has thus rapidly recovered from the destructive effects of the inundations, is owing, doubtless, to the great productiveness of the garden-ground, in the cultivation of which its inhabitants are exclusively engaged; and which, of all kinds of agriculture, is alone able to bear up against such evils under the withering influence of Persian administration. To show the superiority of this branch of agriculture over the usual cultivation of grain, I may remark that in Azerbáján, where alone taxation, in Persia, is so systematised as to afford any data for general estimates, the government assessment upon a village will be found to average five tó máns each family; while, in those cases where the labour of a village is bestowed solely upon the care of fruit-trees and plantations, the assessment rises as high as eight, or even nine tó máns each family, and the peasantry at the same time is usually found to be in a more thriving condition than their neighbours. From Gogán, Dekergán, and the adjacent villages, the only exports are fruit and timber for the Tabriz market. The fruits consist of peaches, nectarines, apricots, plums of all sorts, cherries, pears, apples, and grapes; and the planta-

* See Noz-hetu-l-Kolúb, in the account of Tabriz.

tions are chiefly of poplar and chinár (the oriental plane), the usual materials employed for the wood-work of Persian building. The gardens of this district are mostly the property of Tabriz merchants, who have either planted or purchased them on speculation; they pay the government tax of a panábád* upon each tenáf (a square measure of about eighteen English yards), and for the labour of cultivation, they either allow the villagers a fifth of the produce, or hire them at the rate of 6*d.* a day for each man employed. The expenses of irrigation, either by wells or aqueducts, fall, of course, on the proprietor.

Gogán is a place of no antiquity, but Dekergán,† the capital of the district, occurs in all the old Arabic itineraries, and would seem to be as ancient, or even more so, than Tabriz itself. In modern times, it is chiefly celebrated as the scene of conference between General Count Paskevich and the Prince Royal of Persia, after the occupation of Tabriz by the Russians.

18*th.*—At the distance of 1 mile after leaving Gogán, the road enters a chain of low barren hills, and at 3 miles further rejoins the high road, which turned off to the left, as I have already mentioned, at Linzi Búrní, and conducted through Dekergán. From hence 6 miles among the hills lead to the marble pits, lying a few hundred yards to the right of the road, at the entrance of an inconsiderable plain, which here stretches up from the lake, and forms a sort of open bay among the prongs of the Sehend range. These pits are well deserving of examination by the geologist. They extend over a space of about $\frac{1}{2}$ a mile in circumference, are small and irregular, and do not appear to have been ever sunk above 10 or 12 feet in depth; the sides are cut perpendicularly, and in the section thus exposed the strata of marble may be seen running in parallel and horizontal layers, the first occurring at about five or six feet below the surface,‡ and the succeeding strata at intervals of about 2 feet; the average breadth of the layer of marble may be 7 or 8 inches.

A multitude of springs, strongly impregnated with carbonic acid gas, are seen bubbling up among the pits in all directions. On the escape of the gas, a copious deposit is left of carbonate of lime, and the channels in which the waters run are thus raised up into little rocky ridges, varying in height from 1 to 2 feet above the plain. The marble is, I conclude, the semi-crystalline formation of this deposit, though why it should thus form only in thin horizontal layers, several feet beneath the surface, may be

* A Persian coin of the value of 6*d.* The name is given from the town of Penábábád in Karábágh, where the coin was first struck, about fifty years ago, by Penáh Khán.

† Yáqútí, in the *Mo'jemo-l Beldán*, writes the name Dehí Kherján, and says that it was called after Kherján, the treasurer of Kesrá Anúshirwán.

‡ The formation above the marble is ordinary calcareous tufa in thin layers.

perhaps an interesting subject of inquiry. There is no work, at present, going on in the quarries; but I saw a great number of slabs cut out and squared, lying ready for removal. It is well known that this Marághah marble is highly valued in Persia; when formed into thin plates, it is nearly transparent, and is used for windows to the baths at Tabriz. In larger slabs, it is also frequently employed for pavement to baths and palaces, and the famous throne in the Diwán Kháneh, at Teherán, is formed of the same material. There is a small village at this place called Dáshkesen, inhabited by labourers who work the quarries. The direction from Gogán is about S. 18° W.

From the pits the road strikes across the little plain due S. for 2 miles, having the village of Sherámín to the left, and that of Khánigáh to the right, and then again winds among low hills for 8 miles, till it descends into the spacious plain which extends round the south-eastern angle of the lake. Here the road again divides, the great caravan route clinging to the hills upon the left, and the other road, which I followed, striking down into the plain to the village of Shíshewán, distant from this point about 4 miles, in a direction of S. 16° E.

This part of the country, between the hills and the lake, is in a high state of cultivation, and is covered with villages. A rich loamy soil, abundance of water, and a climate little subject to the rigours of winter, offer advantages to husbandry that, thus united, are rarely to be met with in Persia. The chief place in the vicinity is Shíráz, a name which is sometimes employed to denote the whole dependent district; this, however, is more properly called Dezziyá-rúd, from the title of the stream that waters it. The greater part of the lands are crown property, and have been granted in *Tiyúl** to the family of Abú-l Fet-h Khán, a chief of some consequence in Karábágh; they are calculated to yield, annually, about 5000 *tómáns* of crown revenue, though this sum is far below what is really drawn from them.

Shíshewán, where I made my stage for the day, is alone excluded from the grant. It belongs to Melik Kásim Mirzá, a son of the late Sháh of Persia, and is, perhaps, one of the most interesting places to be found in Azerbáján. The prince, who has built himself a palace in the European style near the village, and who usually resides here, is quite a character. To great intelligence and enterprise he unites a singular taste for the habits of European life, and the cultivation of many useful arts which

* *Tiyúl* is a grant of the crown revenues of any town or district; the individual receiving the grant is usually intrusted with its realization, though not necessarily so. The grant also extends only to his own life-time, unless otherwise specified. It is calculated that about a fifth of the whole land-revenue of Persia is, at present, thus alienated from the crown.

belong to European civilization. Possessing grants of land from the crown, which yield him from 10,000 to 12,000 *tómáns* a-year,* he has a sufficient fortune to enable him to gratify these tastes to a very considerable extent; and Shíshewán is thus rapidly assuming the appearance of an European settlement. In one place may be seen a kennel of dogs; in another, a farm-yard stocked with all sorts of poultry, partridges, pheasants, and water-fowl; in another, a pigsty; a range of buildings in another quarter is occupied by a party of Russian tradesmen,—tailors, shoemakers, carpenters, &c., working at their different callings; but the most interesting objects are the experimental establishments which the prince has set up under his immediate inspection, for the purpose of introducing the improvements of European science, and which, under the encouragement of an enlightened government, might be formed into a nursery of useful arts that would tend greatly to benefit the commercial resources of the country: among these are his mulberry-garden and silk establishment, his glass foundry, pottery, manufactory of white wax, and looms for weaving a variety of cotton, silk, and worsted goods. Perhaps the chance of ultimate benefit would be greater, if he would be content to devote his attention to any one particular object—the production of silk, for instance—where a little care in the preparation, and a system of reeling adapted to the English market, would soon establish the superiority of his produce over the material now exported, and thus induce the merchants of Gílán rapidly to adopt his improvements; but, as his own object is amusement, rather than profit, it can hardly be expected that he would thus sacrifice his varied pleasures for the attainment of one great commercial end.

I found his hobby, at the time of my visit to Shíshewán, to be shipbuilding; and a simple statement of the manner in which he pursued it will serve far better to illustrate his character than pages of general description. The lake of Urumiyah is only a mile distant from his palace; and this convenience of position first led him to think of navigating it. He forthwith applied to his nephew, the Sháh, for the high admiralty of the lake, and a monopoly of the right of sailing on it. This was granted; and some half-dozen tubs that belonged to the different villages along the shores were accordingly seized and broken up. The prince then set to work to replace them with proper boats. Russian workmen were procured from the ports on the Caspian, and a number of small craft were shortly launched, rude enough, certainly, but still far superior to the crazy tubs that had been formerly in use. This was but the first step, however: the prince

* Two *tómáns* may always be reckoned equal to a pound sterling.

now determined to have a ship upon the lake. He got a master-shipwright from Bākúbá; hired a number of carpenters to work under him; bought timber and the necessary materials; built forges and workshops; pitched a small tent for himself on the salt shore, where he remained day and night watching the progress of the labour; and in two months from the time of setting about it he positively launched a vessel upon the lake, of about 100 tons burthen, and unfurled his pendant from the mast-head as lord high admiral of his little sea. This vessel he intends employing upon a carrying trade between the different villages upon the lake; and I do not doubt but that he will soon reimburse himself for the outlay. Elated with his first essay, he now aims at higher things, and will not rest satisfied till he can run up and down the lake in a steam-boat. There is certainly no ordinary degree of enterprise and perseverance required in a country like Persia to work out an object to an end, as Melik Kásim Mírzá is now doing in the case I have detailed; and though the establishment of a steam-boat on the lake of Urumíyah may be the mere gratification of a private taste, still, as a trait of character, it is, I think, worthy of record, and, as a means of drawing the attention of Persia to naval matters, and from thence to the maritime resources of her Caspian provinces, it may not, perhaps, also be devoid of eventual benefit to the country.

The lake of Urumíyah has been so often described that it need not long delay us. The geographical outline is laid down with tolerable accuracy in Colonel Monteith's map. It extends above a degree of latitude in length, and is about a third of that distance in extreme breadth. The greatest depth of water that is found in any part is 4 fathoms; the average is about 2 fathoms; but the shores shelve so gradually that this depth is rarely attained within 2 miles of the land. The specific gravity of the water, from the quantity of salt which it retains in solution, is great; so much so, indeed, that the prince's vessel, of 100 tons burthen, when loaded, is not expected to have more draught than 3 or 4 feet at utmost. This heaviness of the water also prevents the lake from being much affected by storms, which, from its extreme shallowness, would otherwise render its navigation dangerous. A gale of wind can raise the waves but a few feet; and, as soon as the storm has passed, they subside again into their deep, heavy, death-like sleep. It is an old opinion that the waters of the lake are too salt to support animal life. Geographers of ancient and modern days all combine in the assertion; but though fish, certainly, and the larger aquatic species, are not to be found in it, yet the prince assured me that, in his voyages, he had repeatedly met with the smaller class of zoophytes, and those too in considerable numbers.

There is also a common tradition in the country that the lake

has greatly encroached upon its original extent. The low shelving shore, which now stretches far into the water, is supposed, at no very remote period, to have been dry land; and the increase of the waters is explained by the disemboguing of the great rivers Jaghatú and Tátáú, which were formerly absorbed in the irrigation of the plain of Miyándáb. Another proof adduced in support of this opinion is, the submersion of a causeway, which is believed to have formerly crossed the lake from Urumiyah to Bínáb; and at the same time, as this extraordinary work has been altogether unnoticed by former travellers, I may here mention upon what evidence the belief in its existence depends.

I first heard of the causeway from an Afshár chief of Urumiyah. He declared to me that some thirty years ago he was ordered, on business of consequence, to communicate with Ahmed Khán of Marághah. The Bilbás Kurds, the common enemy of the Afshár and Mokeddem tribes, had possession of the whole country along the southern shores of the lake; and it was thus impossible to pass by the usual route. At the same time the tubs which were employed by the villagers to cross from one side to the other were none of them at hand, so he had no resource but to trust to an old guide, who promised to conduct him across the ruined causeway. He made the attempt, and actually passed across, between daylight and dark, the line of the bank being visible, as he declared, the whole way, from a slight change in the colour of the water. He described it as a raised bank of earth, some 10 or 15 feet in breadth, over which the usual depth of water was about 2 feet, and never more than 4 feet. I heard stories about the bank subsequently from many people living on the shores of the lake; and, in my present visit to Shishewán, I was curious to learn from the prince if it actually existed at the present time. In reply to my inquiries the prince told me that he had frequently sailed over its supposed line, but had never been able to observe it; that the tradition of its former existence, however, was universal; and that some years ago a party of horsemen from Urumiyah actually attempted to follow it; but several of them were lost in the lake, and the others returned; since which time no one has ventured on the passage. The people believe that the earth has gradually crumbled away before the action of the water; and that at present there is no such thing as a continued bank. If such a causeway did ever exist in reality, it must have been of the most remote antiquity, dating, perhaps, from the Median or Assyrian monarchs, who could alone have planned and executed a work of such gigantic labour.

The comparative geography of the lake has been well illustrated by Saint Martin, the historian of Armenia. He has ingeniously conjectured that the name Spauta that is applied to it

in our present MSS. of Strabo is an error of some ancient copyist for Kaputa, a word which answers to the Armenian Gaboïd, and Persian Kabûd, signifying blue; and which, in allusion to the colour of the water, is the title usually assigned to it by the Oriental geographers. To Saint Martin's account I have only to add that, under the Moghul dynasty, the lake seems to have been named indifferently Khojest* (a word which I am unable to explain); and the salt sea of Tezûch, from the town of that name at its northern extremity; and I may also correct his orthography of the names of the two great rivers which empty themselves into it. These, from the printed copy of the Jehân Numâ he gives as Tchefteh and Teftou.† The names, in reality, are Jaghatû and Taghatû, the last having been softened into its present pronunciation of Tâtâû.

The islands in the lake until lately were barren and uninhabited: Melik Kâsim Mîrzâ has recently colonised the largest, which he names Maral;‡ and he proposes in time to form settlements upon all of them.

19th.—I passed this day at Shîshewân, examining the prince's establishment, and giving him such information and assistance as I was able in his various objects of pursuit. His acquaintance with European languages is extensive. Of French he is a perfect master; and in English and Russian he converses with much fluency. His habits of domestic life are also entirely European: he wears European clothes, breakfasts and dines in the European style; and, as far as regards himself, has adopted our manners, to the minutest point of observance; and this singular transition—a change which a person accustomed to the contrasts of European and Oriental life can alone appreciate—has arisen entirely from his own unbiassed choice, and without his having had either means or inducement to effect it beyond his occasional intercourse with European society at Tabriz.

Shîshewân, I confess, presents a phenomenon in social life, which I should little have expected to meet with in Persia; and when I reflect that moral development can alone proceed from an improvement in the social condition, I fervently hope that the prince may have many imitators, and that a brighter day may thus be opening upon Persia.

20th.—From Shîshewân I travelled 13 miles to Bînâb, in a direction of S. 26 E. The village of 'Ajab Shehr,§ is distant

* For some curious particulars regarding this name, Khojest, or, perhaps, Chejest, see my *Memoir*, pp. 79, 80.

† See Saint Martin, "*Recherches sur l'Armenie*," tom. i. pp. 56-61.

‡ He gave it this name from a pair of maral (the wild red deer of Persia), which were the first living beings he placed upon the island.

§ Literally, "the wonderful city."

scarcely $\frac{1}{2}$ a mile from Shíshewán, and Kháníyán, which is the usual halting-place for Káfilahs, is again about $1\frac{1}{2}$ mile beyond. Leaving these places to the left, at 2 miles, I crossed the stream of Dezziyá-rúd—this river rises high up among the ravines of Sehend, and at the distance of 2 farsakhs, before it debouches into the plain there is a ruined castle, which would be worth examining; it is named Tásh Kal'eh,* and, from the accounts I have received of it, I conclude it to be a work of the Sasanian ages. A great number of aqueducts are derived from the stream of Dezziyá-rúd, which fertilise the surrounding lands, and below Shíshewán a dam has been built across the bed of the river which throws the remainder of the waters into other canals, employed also for irrigation. The staple produce of the plain is cotton, rice, wheat, and barley. At the distance of 2 miles from the river, the road quits the cultivated plain, and leads over a narrow barren tract, between the hills and the lake, till it approaches to the edge of a salt morass, inundated in the spring, when the waters of the lake rise to their highest level; here the road to Marághah strikes off to the left, along the skirts of the hills, passing close under the singular Mithraic caves, which have been described by Kinneir. The route to Bínáb conducts along a raised causeway, through the salt morass; and, at times, is almost impassable from the mud and sloughs. At this season, however, it was perfectly dry.

Bínáb is a considerable town, containing about 1,500 houses, and surrounded for many miles, in all directions, with orchards and vineyards. The mildness of climate that it enjoys from the neighbourhood of the lake, renders it most favourable to the cultivation of the grape, vast quantities of which are raised and exported to Tabríz. The streets are clean, and, from the greater part of them having a stream of water flowing down the centre, the place possesses some resemblance to Khóí, decidedly the neatest and cleanest town in Persia: there are, also, a bázár, and several good Caravanserais. Bínáb forms a dependency of Marághah, paying 4000 tóman's of revenue, and furnishing a quota of 400 men to the Azerbiján army, an obligation fully equivalent to the amount of actual taxation. Abundance of water is found at a few feet beneath the surface, and the vineyards are thus all provided with wells for irrigation. The river of Marághah, called Šofi Chái, properly Šáfi, flows, also, along the southern outskirts of the gardens, and numerous canals are derived from it, which contribute to water the town and vineyards. Bínáb is a settlement of modern times, and does not appear in any of the Oriental geographers.

* Pronounced Dásh Kal'eh, literally, "the stone castle."

21st.—From Bínáb I travelled a distance of 20 miles, to Chillik, a village of Melik Kásim Mírzá's, on the Tátáú river; beyond the gardens I crossed the Sofi Chái, by a good bridge, and from thence, passing over a cultivated tract, for 2 miles, reached the point of hill which forms the northern boundary of the great Miyándáb plain; here I quitted the high road, and struck off by a bye track, in a direction of S.W. by S. to Chillik. At 5 miles farther, I crossed the Jaghatú, a paltry stream, at this time containing scarcely a foot's depth of water, and running in a direction of N.W. $\frac{1}{2}$ W., and beyond this, at 3 miles, I dismounted at the little village of Kemchik, to breakfast. Along the course of the Jaghatú, there are several villages, but the other parts of the plain are bare, and uninhabited; and, with the exception of an occasional patch of castor oil-plant, there is no trace of cultivation. The title of Miyándáb, contracted from Miyándú-áb, applies, properly, to the country between the two rivers of Jaghatú, and Tátáú, but, in its common acceptance, it includes the whole extent of this vast plain, as well to the N. of the one as to the S. of the other. The soil throughout is extremely rich, and, at the upper end of the plain, where many streams descend from the mountains to the N. and E., and the higher level of the beds of the two great rivers, affords facilities for irrigation: cultivation is abundant; but, as the plain slopes down gradually to the shores of the lake, the Jaghatú and Tátáú wear themselves into deeper channels, the difficulty of raising the water into artificial ducts increases and the greater part of the land is thus allowed to run waste, serving, at best, but for the winter pasturage of the flocks belonging to the Mokeddem, and Mikrí I'liyát. A dam, thrown across either of the rivers, to raise the water to the level of the plain, would convert its whole surface into arable ground, and would, probably, soon repay the expense of its construction; but a work of this kind would need to be of gigantic character to resist the tremendous force of the spring currents, and would thus far exceed the means of any private individual. The government, indeed, might undertake it with advantage; but, in the apathetic and narrow-minded views that pervade all Persian administration, it is vain to look for the execution of any work that has mere prospective benefit to recommend it.

At 8 miles from Kemchik I reached the banks of the Tátáú, and crossed it, by a shallow ford, to the village of Chillik, upon the other side. Chillik forms one of a cluster of villages S. of the Tátáú, belonging to Melik Kásim Mírzá; the district is irrigated by canals from the river, and its flourishing appearance bears the most honourable testimony to the enterprise of the proprietor. The prince also hopes to be able to draw the great

caravan route which now passes through Merhemet-ábád, to this place; and, if he succeeds, the village will rapidly rise into consequence. In the spring, when the rivers Tátái and Jaghatú are swollen by the melting of the snows, they remain unfordable for many months together; and all caravans and travellers at that season, have hitherto been obliged to cross upon the crazy rafts, formed by the government of Merhemet-ábád: for these the prince has now substituted, at Chillik, commodious ferry-boats, which he works, gratis, for the public accommodation; and, although the passage at this place will cause a circuit of some miles, I do not doubt but that it will soon become the great thoroughfare.

After an hour's rest at Chillik, I set out in search of a most interesting object of antiquity, which I had heard of in the neighbourhood. This was the Cuneiform inscription of Tâsh Teppeh, an isolated hillock in the plain, distant 5 miles from Chillik, in a direction of S. 30 E. On reaching the spot I found the teppeh to be of an irregular shape, 350 paces in circumference at the base, and, as well as I could judge, from 50 to 60 feet above the level of the plain—it is formed of a projection of limestone above the soil, lying in strata nearly perpendicular; the whole face of the hillock, fronting Chillik, thus presents a series of smooth surfaces, adapted to the engraving of sculptures or inscriptions; and upon one of these natural tablets I found the object of my search. The inscription is about 35 inches square, and consists of 21 lines, written in the Median alphabet, somewhat modified from the form which it exhibits on the tablets of Bisitún, Hamadán, and Persepolis; it is deplorably mutilated—the rock being liable, from the direction of the strata, to chip off in large flakes, so that the greater part of the writing is thus altogether destroyed. I conclude that the hillock was anciently surmounted by a fire-temple, and that the purport of the inscription is religious; but it is, I fear, in too imperfect a state to admit of any correct version. There is, at present, a little mud enclosure upon the summit of the teppeh, which has been used as a place of defence; and within this is a mound of earth, the relic of some ancient building; but neither brick, nor glazed pottery, nor any other evidence of antiquity is to be found; and were it not for the inscription cut upon the rock, there would be nothing whatever to awaken curiosity. Below the teppeh are a few broken mounds which seem to mark the site of a village.

The present village of Tâsh Teppeh is at the distance of $\frac{1}{2}$ a mile beyond the hillock, but it is a miserable hamlet, and a traveller wishing to visit the place should make his stage at Yelâli, a large village belonging to the prince, only a mile distant on the road to Chillik.

After taking a copy of the inscription, I galloped back to Chillik, where I arrived at dark.

22nd.—At Chillik I procured a guide to conduct me to Ushneî, to which place I was proceeding, in order to copy another inscription that I had heard of in the vicinity. For 10 miles I traversed the Miyándáb plain, in a direction of S. 53 W., the road lying, for the greater part of the way, through a dense mass of reeds and high grass, which it was not easy to penetrate. In the spring, this tract, I learnt, is an impassable morass, fed by the Só-új Bólák river, which, at other seasons, loses itself in a lake, about 10 miles distant, and does not reach the Miyándáb plain; the Só-új Bólák river never, at any time, joins the Tátáu, as laid down in Colonel Monteith's map.

At last, having fairly crossed the Miyándáb plain, we entered some low hills, which reach down nearly to the lake, and crossed into the district of Soldúz: the country, hereabouts, is tolerably fertile, and though belonging, geographically, to Soldúz, the villages are all inhabited by Mikrí Kurds, and pay their revenue, for the greater part, to the Mikrí chiefs of Só-új Bólák. A far-sakh among the hills brought us into the plain of Soldúz; and we then turned up W. by N. through a rich and highly cultivated country, till, at the end of 3 hours' ride, we halted for the day at 'Alí Beglí, a large village upon the river Gáder.

In our maps of Azerbáján we usually find a town of the name of Soldúz, at the southern extremity of the lake, but this is an error; Soldúz is the name of the district; a plain stretching nearly E. and W., parallel to the southern shores of the lake, from which it is divided by a low range of hills, and measuring about 20 miles in length and 5 miles in breadth. It is certainly the best watered and the most fertile plain which I have seen in Azerbáján—I think, I may say, in Persia: the river Gáder flows down the centre; and from this are derived vast numbers of canals, which irrigate as much land as is required for cultivation. It is held, at present, by a party of the Qará-pápá tribe, on a military tenure of rather a singular character. This Turkish tribe, who have a very high reputation for courage, and skill in horsemanship, and who had been settled, for a great length of time, in Georgia, sought refuge with 'Abbás Mírzá during the last Russian war. The prince received them with open arms; and, to reward so rare an instance of fidelity, immediately made over to them the district of Soldúz, for the maintenance of the chiefs and their followers. The government assessment on Soldúz was, at that time, 12,000 tó máns; and the whole of this sum was granted them in Tiyúl, on condition of their furnishing a body of 400 horse to the crown, whenever called upon; but Ahmed Khán, of Marághah, in whose government Soldúz was formerly included,

had drawn from it nearly 30,000 tomans annually; and the *Karâ-pâpâs*, when once fairly installed in their new possessions, rather increased than abated the revenue.

The *Karâ-pâpâs* numbered about 800 houses, and they found at Soldûz 4000 or 5000 families of *ra'yyahs*, chiefly Kurds, of the *Mikrî*, *Mâmish*, and *Zerzá* tribes, with a few *Mokeddem* Turks, who were employed in the cultivation of the soil. Since their location in this favoured spot, they have been also able to buy the proprietorship of the greater portion of the lands, and thus have gone on increasing in wealth and prosperity, till, at the present day, there is certainly no tribe in Persia that can compete with them in comfort and independence. Free from all the evils and annoyances which attend the government realization of revenue, the chiefs reside each in their respective villages, with their military retainers around them, engaged in their agricultural pursuits, and feeding on the fat of the land: but still, wherever I stopped to inquire, I could not find that there was any amelioration in the condition of the peasantry. "What does it signify to us," said the poor Kurdish *ra'yyahs*, "whether the *Karâ-pâpâs*, or the *Mokeddems*, or the *Tabrizis*, govern Soldûz? We labour hard every day of the year, and we can still only just get bread to keep our wives and children from starving, going about, ourselves, barefoot and in rags, as you see us:" and such is, I suspect, really the fact. In all cases in Persia, except among the tribes where the chief and clansmen feel a mutual interest in each other's welfare, the cultivator of the land is worked and taxed to the utmost limit which he can bear: in ordinary cases he has to satisfy the demands of the government and the rapacity of his immediate master: here he is subject to the same extortion; the only difference being that the whole sum goes into the pocket of the chief. However, to a traveller passing through the plain of Soldûz, it appears a magnificent district—extensive meadows, pasturing at least 1000 mares; herds of buffaloes, cows, and sheep grazing in all directions; rice ground sufficient for sowing 1000 *kherwârs** of rice; and which, being, as I was told, only half cultivated, still yields at a tenfold return, 5000 *kherwârs* annually, worth upwards of 20,000 *tómâns*; and a crowd of villages, with a teeming peasantry, all combine to give an air of life and prosperity to the scene, that is rarely to be met with in Persia.

The capital of Soldûz is *Nâkhodeh*, a large village at the foot of an immense *teppéh* (artificial as it appeared to me), upon which is a quadrangular fort, with eight bastions, the strong place of the district. Here *Mehdí Khân*, the chief of the *Karâ-pâpâs*, resides; and this is the place, I conclude, which appears in the

* The *kherwâr* is about 640 lbs., and the average value of a *kherwâr* of rice in *Azerbâijân*, may be taken at 4 *tómâns*.

Syriac annals, under the name of Soldúz; and which was long the see of a Christian bishop, under the metropolitan of Urumiyah.* I cannot trace Soldúz in Oriental Geography; indeed, the name would seem to be a Turkish imposition, and probably only dates from the Seljukians. The historian of the Kurds† states that, in the fifteenth century, it was wrested from the Kizil-báshes,‡ by Pír Bodak, the first leader of the Bábán tribe; and shortly afterwards, when the Mikrís rose into power, it fell under their sway, and formed one of their most valuable possessions. It remained with the Mikrís until modern times, and even, at present, by far the greater number of the inhabitants are of that tribe.

There are about sixty villages scattered over the plain, and they appear larger and in a more flourishing condition than those of the neighbouring districts. The chief places, after Nákhodeh, are Kêlátán, at the N.W. extremity of the plain, Chiyáneh, Ferokhzád, 'Alí Beglí, and Derbend, upon the Ushneî frontier.

23rd.—I moved to-day from 'Alí Beglí to Ushneî:§ the road led, for 10 miles, along the foot of the hills, which bound the Soldúz plain to the southward; and then, ascending the brow of a little prong that juts out and forms its western limit, overlooked the fertile and secluded district of Ushneî. The view from this point was noble in the extreme. The great Kurdistán mountains bound the district to the W., bearing here the same stern character of grandeur and elevation which they possess in their whole line of prolongation from Taurus, and dwarfing all the other ranges that intersect the face of the country. The boundary of snow which clothed their rocky summits was marked, as if with the precision of a drawn line; and at the foot of the range was to be seen the little town of Ushneî, smiling among its gardens and orchards, and offering a strange contrast to the savage wildness of the mountain rampart above it. The town was distant from this pass, which is called Āli-Heremí, about 10 miles, in a direction of N. 75° W. Riding over the intervening plain, I at once became aware that I had fairly entered Kurdistán. In Soldúz there were many Mikrí ra'yyáhs; but, under Turkish masters, the Kurds lose their great national characteristics, and are not always distinguishable from the Turkish or Persian peasantry: here the change was marked and universal—for the ragged and sombre-looking blue Kedek|| dress, and the old felt or sheep-skin cap, I

* Assemani, tom. iv., p. 423.

† In the *Tárikhi-Akrád*.

‡ Kizil Básh, or Red-head, is applied by the Kurds to all foreigners, Persian as well as Turkish.

§ I use the uniform orthography of Ushneî to represent the modern pronunciation, for the name is written in so many different ways by the Orientals, that it is impossible to say which is the correct one.

|| A Persian cotton-manufacture, which is worn by all classes, from the king to the peasant.

now saw the gay striped turban, the stout legging, and the many-coloured vest. The Turk wears a long broad dagger at his waist; the Kurd, a sword; or, if mounted, he usually carries a spear: the physiognomy, too, is quite distinct. Among the Turks of *Azerbáján* the usual cast of countenance is sullen, inanimate, and with no expression but that of dogged determination: the features of the Kurd betoken intelligence, cheerfulness, and independence; and the light elastic step of the one contrasts strongly with the dull and heavy, but still untiring pace of the other.

The acting governor of *Ushneí*, *Ghafúr Khán*, to whom I had brought letters of introduction, was absent from the town; but I was most hospitably received by his family, and treated with every possible kindness and attention.

The district of *Ushneí* has been little visited by Europeans, and merits therefore a short description. Situated at the foot of the great *Kurdistán* mountains, and surrounded on other sides by an amphitheatre of lower hills, it occupies a natural basin of small extent, but of great beauty and fertility. The river *Gáder*, debouching from the mountains by a deep and precipitous gorge, bisects the plain; and numerous other streams which descend from the same hills, supply the means of irrigation most abundantly throughout the district. The plain is irregularly shaped; its extreme length and breadth being about 10 miles, and the little town of *Ushneí* is upon the rise of the mountains, near its north-western extremity: there are about forty other villages dispersed over the adjacent country. The inhabitants are Kurds, of the tribe of *Zerzá*, now reduced to about 800 houses; but numbering, before the plague which some years ago attacked this part of *Azerbáján* with unusual severity, between 4000 and 5000 families. The town of *Ushneí* alone, 10 years ago, was estimated to contain 1000 houses; at present there are not above 200. There are also at *Ushneí* about 500 families of refugees, composed of 300 *Mikrí*, 100 *Bilbás*, and 100 families, offsets from the various clans of Turkish *Kurdistán*. *Ushneí* forms a dependency of the government of *Urúmiyeh*, and pays an annual revenue of 4000 *tómáns*. The *Zerzás*, however, in common with all the Kurds, are of the *Sonní* religion; and thus, differing in language, in manners, and in faith from their *Afshár* masters, submit impatiently to their dominion. They are a remarkably fine, active, and athletic race, and are, perhaps, the most warlike of the many warlike clans who inhabit this part of Persia. From their exposed position, indeed, upon the immediate frontier of Turkish *Kurdistán*, they are constantly engaged in frays with the wild tribes who inhabit the neighbouring mountains; and I saw several of the chiefs who wore their shirts of mail day and night, and always kept their horses ready saddled, not knowing at what

moment they might be called on to sally forth and repel a foray. Their common weapon is the spear, and they are loth to give it up; but finding that the mountain clans with whom they engage have almost universally adopted the use of fire-arms, they are beginning gradually to follow their example. In every copy that I have consulted of the Sheref Náneh, the chapter on the Zerzās is omitted, and I am thus unable to glean any particulars as to their ancient history. In the chapter of contents prefixed to that history, Ushneï is alluded to as a possession of the Berádúst tribe; but in the body of the work there is a different arrangement, and I do not doubt but that the name should properly be assigned to the Zerzá tribe, which follows soon after that of Berádúst Láhiján, or Láriján, as the name is written in the Sheref Náneh, was also, at one time, in possession of the Zerzās, and was taken from them in the fifteenth century by Pír Bodák, who established the dominion of the Bábán tribe; the present rulers of Soleimányeh, from the shores of the lake of Urumíyeh to Kerkúk, on the frontiers of the Baghdád Páshálik.

Ushneï was one of the early Christian settlements of Azerbáján. A bishop of this province is said to have been ordained by the first Jacobite Primate of the East, about A.D. 630;* and in the tenth century we find a Christian monk coming from Osna, a town of Azerbáján, and founding a convent of Sergius; afterwards much celebrated in the East.† The institution of a Nestorian Church in Azerbáján appears to have taken place during the thirteenth century, shortly after Holákú had made Tabriz his capital; and in A.D. 1281, when the Uighúr monk, Jaballa, was nominated by the Moghul Emperor to be Nestorian Catholicus, Abraham, Bishop of Ushneï, attended at his installation.‡ This Abraham was probably one of the first Nestorian Bishops of Azerbáján; certainly the first of that Church who presided at Ushneï; and I conclude that a shrine near the village of Sirgán, named Dēiri-Sheikh Ibrāhīm, which is frequented as a place of pilgrimage by all the Nestorians of the province, marks his place of sepulture. The ignorant Nestorians of the present day pretend that Sheikh Ibrāhīm was a follower of the Apostles; and assert that the shrine contains a record of his death in the first century of Christ, engraved in ancient Syriac: but I narrowly searched the place, and there is certainly no inscription whatever in any part of it. The present building, indeed, scarcely appears

* Assemani, tom. ii., De Syris Monoph. under the head Harnua.

† Asseman. tom. ii., p. 356.

‡ Asseman. tom. ii., p. 456. I find that 10 years previous to this in A.D. 1271, Denha, the Nestorian Catholicus, had removed the Metropolitan seat from Assyria to Ushneï, to be nearer the protection of the Moghul Court. Abraham was probably at that time Bishop of the diocese. See Greg. Bar. Heb. Chron. Syriac, vol. ii., p. 573.

as old as the thirteenth century, but it may have been re-edified in modern times; and the sacred character which the first Bishop would naturally acquire as the founder of a new Church seems to account for the veneration that is paid to the shrine.

From the time of the Moghuls the Christian Church of Persia has alone flourished in the province of *Azerbáján*. *Selmás* and *Urumíyah* have been the two great ecclesiastical settlements, and *Ushneï*, as a dependency of the latter, is said to have preserved her line of Bishops as late as the last century. At present there are only nine families of Nestorians resident in the town; and these, the last poor remnant of the *Ushneï* Church, talk of soon emigrating to *Urumíyah*.

The tradition of the country regarding *Ushneï* is singular. The Kurds apply to it the name of *Shári Sebá*, and believe it to have been the place from whence *Belkís*, the queen of *Sheba*, went to visit the great monarch and magician of the East, at his palace of *Takhti Soleimán*. At that time, they say, the city spread itself over the entire plain; and they assert, that at the present day, whenever they have occasion to excavate, to any considerable depth, in any part of the district, they invariably come upon the massive brick remains of the ancient buildings. That the plain was formerly very populous, may be inferred from the number of artificial mounds that are scattered over its surface; but that it ever contained any great capital, I regard as a mere fable; for in ancient geography, there is no site that will accord with it in name or position; and even the early Arabs are altogether silent respecting it. *Ushneï* is alone mentioned by *Hamdu-lleh Mostaufi*, in the 14th century; and he merely describes it as a small town, pleasantly situated among the hills, at the distance of one stage, S.W. of *Urumíyah*, and possessing about twenty dependent villages.*

24th.—To-day I left the town of *Ushneï*, and proceeded to the fort which *Ghafúr Khán*, acting governor of the district, was employed in building on the rise of the mountains, where the great *Kurdistán* road opens upon the plain. The distance was 7 miles, and direction S. 60 W. At three miles I stopped to breakfast at the village of *Sirgán*, a cluster of wretched huts, surrounding a large artificial *teppéh*, upon the summit of which one of the *Zerzá* chiefs has recently erected a strong mud fort. In this place I believe that I recognise the village of *Saragana*, mentioned by *Theophylact*, as the place where *Khosraú Perwíz*, with his Roman auxiliaries, halted to refresh their forces after traversing the country of the *Anisenes*, upon the march from the banks of the greater *Zab* to *Canzaca*; but I shall endeavour to

* See *Noz-hetu-l Kólúb*.

illustrate the obscure geography of that route in the memoir on Ecbatana;* it may also possibly represent the Sincar of Ptolemy, which is placed in his Median catalogue, next to Dariausa,† for that name I cannot doubt to be identical with that of the place which is described in the Sheref Náneh, under the title of Dáriyás, as the most considerable of the Mikrí settlements; and which, though there is no indication of its immediate position in the modern geography of the country must thus necessarily be in the vicinity of Ushneî. The transposition of the *r* and *n* in the name of Sincar will give nearly the modern orthography of Sirgán; but the identification is of course merely conjectural. About a mile from Sirgán, at the foot of the mountains, is the Deîri-Sheikh Ibráhim, to which I have already alluded. It is a solitary building, composed of a number of vaulted passages, cells, and oratories; and, in the innermost recess, is the tomb of the supposed saint: there is no resident guardian of the shrine, but the poor Nestorians, from Ushneî, come out weekly to offer their prayers there; and at certain seasons it is also visited by crowds of pilgrims. At 2 miles from Sirgán, I crossed the Gáder river, a shallow but rapid stream; and then, ascending the rise of the mountain for 2 miles farther, reached the fort of Ghafúr Khán. I was anxious to proceed up the mountain at once in search of the inscription, but the day was too far advanced, and I took up my quarters, therefore, in the half-finished fortalice. The Zerzās are at feud with most of the neighbouring tribes—they suffer chiefly, however, from the inroads of the Bilbás and Rewendís, large parties of whom pasture their flocks during the summer along the skirts of the mountains, and make constant forays upon the plain below. These unwelcome neighbours had moved off to their winter grounds a short time before my arrival; and Ghafúr Khan, having suffered severely from their depredations during the summer, had immediately taken advantage of their absence to run up a small mud fort in the exact line of their inroads, and almost within shot of their most favourite pastures. I found him now straining every nerve to finish his work before the winter set in, as building would be then stopped, and the tribes would probably return in the spring, before he might be able to complete his defences: he had chosen a small garrison of his best fighting men to defend the place, and had put them under the command of a near relation; and the glee with which he looked forward to the astonishment of the Bilbás at finding on their return this strange apparition of a fort throwing defiance in their very teeth, was really most amusing;

* See my second Memoir, p. 73 and 74.

† Lib. vi. c. 2.

the occupants, however, will certainly have warm work of it; they must prepare for one continued fight for at least six months.

27th.—After being weather-bound for two days at Ghafúr Khán's fort, I at length set out to attempt the ascent of the mountain, at the summit of which I learnt was the inscription I had come in search of. This place is extremely difficult to reach: during the summer the wild Rewendis cover the face of the mountain, and from the Persian side it would be most hazardous to venture among them under any protection that could be offered; and very shortly after the I'liyát tribes withdraw from the vicinity, the natural obstacles increase to such an extent that it is almost equally dangerous to encounter them. The only times at which the mountain can be ascended in safety are the first fortnight in October, and the last in March. I was now ten days too late in the season, and the Khán strove hard to dissuade me from making the attempt; but as I had come so great a distance for the express purpose, I was determined that nothing should stop me but the absolute impracticability of the ascent.

This morning accordingly, when the weather fortunately cleared, and the wind, which had been blowing furiously for the two preceding days, appeared to have exhausted itself, I set out, attended by two horsemen, well mounted, well wrapped up, and with every defence against the snow-drift, which I was told I should certainly encounter at the summit. For five miles I wound slowly up the face of the mountain, pursuing a broad open track, neither steep nor difficult, along the slope of a huge shoulder which juts out from the great range. At this point I entered the snow, and the difficulties commenced: the ravines which indented the face of the shoulder became, as we ascended higher, choked with snow, and in one of them we narrowly escaped being engulfed. At length, however, alternately riding and walking as the nature of the ground admitted, we reached a more open part of the mountain; and then, pushing rapidly on, gained the summit of the pass, exactly in four hours from leaving the fortress at its foot. The distance I should judge to be about 10 miles, and the direction from the town of Ushneî, the fort lying just in the line, was S. 60 W.

I here found upon a little eminence by the side of the road, and nearly at the highest point of the pass, the famous Keli-Shin, the stories of which had long excited my curiosity. I have already alluded to the danger of traversing this pass—it arises not so much from the depth of snow (for an active mountaineer, by threading his way along the most exposed points, can generally avoid this difficulty), as from the violent and deadly drifts which keep continually sweeping over the face of the mountains during the greater part of the winter months. These drifts come on so

suddenly, and with such terrific fury, that a traveller who is once fairly caught in them will rarely escape, and as at the same time the pass of Keli-Shín is the only line of communication between Persia, and Rowándiz; and parties are thus found at all seasons who are bold enough to attempt to traverse it; but a winter is never known to elapse without several persons being here lost in the snow. From the frequency of these accidents an extraordinary degree of dread and mystery is attached to the pass; and in the superstition of the Kurds, this feeling connects itself with the talisman of the Keli-Shín, which is supposed to have been created by some potent magician, to afford the means of protection against danger, but which, its use being now unknown, only serves to lure fresh victims to destruction. The Keli-Shín is a pillar of dark blue stone,* 6 feet in height, 2 in breadth, and 1 in depth, rounded off at the top and at the angles, and set into a pediment, consisting of one solid block of the same sort of stone, 5 feet square and 2 deep.

On the broad face of the pillar fronting the E. there is a cuneiform inscription of forty-one lines, but no other trace of sculpture or device is to be seen. I had come prepared to take a copy of the inscription; but, much to my regret, I found this now to be quite impracticable. On breaking away the sheet of icicles with which the surface of the stone was covered, the upper half of the inscription was shown to be irrecoverably obliterated, and the lower half also to be so much destroyed that, except under a very favourable aspect of the sun (soon after sun-rise, when the rays would be projected with a slight obliquity on the writing), it would be impossible to distinguish half a dozen consecutive letters: an impression on moist paper was also of course impracticable, when the thermometer stood at 20 degrees below freezing point; so I could do nothing more than copy a few characters, to determine the class of writing to which the inscription belongs, and measure the dimensions of the pillar; and even in this I was much hurried by the guide whom I brought with me, for the wind had been gradually rising; and another half hour, he assured me, would bring on one of the fatal drifts. I thus only delayed to take a few bearings, and have one glimpse from the point of the pass of the magnificent mountain scenery in the direction of Rowándiz; and we then turned our horses' heads, and made the best of our way along the road, which we had opened in our ascent.

The wind came howling after us, but the drift had not fairly set in until we were near the verge of the snow, where there was no longer any danger. On our ascent we had passed some of

* Keli-Shín signifies in Kurdish "the blue pillar."

the Zerzá Kurds, employed in digging out of the snow a number of mules and horses belonging to a party who had attempted to traverse the pass the preceding evening in their return from Sídek, and, being caught in a drift, had been obliged to leave their loads and cattle, and use their utmost speed to escape with their own lives. I saw some of these animals dug out from a depth of at least 6 feet; but on our return we found the party had abandoned their labour and fled before the drift, to await another lull, before they ventured into the region of death and desolation. The view from the summit of the pass was most magnificent—mountains towering over mountains, all heaped about in a chaos of disorder, and stretching away in infinite and undistinguishable ramifications: the greater part of them were wooded to their very summit, and the huge masses of vapour left by the storms of yesterday, here hanging heavily upon a rocky crest, and there boiling up from the vast abysses that yawned beneath my feet, gave an indescribable and almost appalling grandeur to the scene. The outer barrier of this immense range, over the summit of which leads the pass of Keli-Shín, appears to be the most elevated line in the whole chain of mountains; for from the point where I stood, the guide pointed out to me the positions of Sídek, Rowándiz, and even Herír, which is very near to the Assyrian frontier. And now I must delay a moment to offer some remarks upon this very curious pillar of the Keli-Shín. At the distance of 5 hours from the pass, which I ascended, there is a precisely similar pillar, denominated also Keli-Shín, upon the summit of the second range, which overlooks the town and district of Sídek. This also is engraved with a long cuneiform inscription; and as it is said to be in far better preservation than the one at Ushneî, it would be very desirable to examine and copy it. But the chief value which I attach at present to these two interesting relics of antiquity is the determination which they afford of a great line of communication existing in ancient days across this range of mountains. This line could only have been used to connect two great capitals,* and these capitals must then necessarily have been Niniveh and Ecbatana; and while we thus derive from the establishment of so curious a point a geographical indication of some consequence, we are also able to verify the line, as well from the evidence of history, as from the experience of modern times. The Christian clergy of

* The ancient monuments of Persia, whether inscriptions, sculptures, ruined palaces, temples, or bridges, only occur, as far as my experience enables me to judge, upon the lines of great roads of communication, conducting from one capital to another. This mountain route was no doubt impassable in winter, and the high road from Niniveh to Rhages was thus obliged to make a circuit to the south as far as Holwán to cross the mountains into Media by the gates of Zagros, the only pass in the whole range which is not blocked up by the snow.

the present day, in travelling from Mósul to Urumíyah, always follow this line; and that it has been the great thoroughfare for them since the establishment of the Nestorian church in Azerbáján, we may also argue, from finding the Catholicus, at Ushneí, on his return from the Moghul court to his Assyrian churches towards the close of the thirteenth century.* I cannot doubt, indeed, but that in the frequent intercourse which took place about that period between the churches of Assyria and Azerbáján, the direct route across the mountains by Rowándiz was the one uniformly followed. From Ushneí it conducted by the Keli-Shín to Sídek, from Sídek to Rowándiz, from Rowándiz to Herír, and from Herír it debouched into the plain country of Arbil. During the troubles of modern times the track has been closed against the transit of merchandise; but 'Alí Páshá, in his late attack upon this country, found it practicable for artillery a long way beyond Herír, and on the Persian side it is known to be open to guns almost to the very fort of Rowándiz. I learnt from the Kurds that the only really difficult part is between Rowándiz and Herír.

In the meagre accounts of the Byzantine historians I believe that I can also trace the steps, both of Heraclius and Khosráú Perwíz, along this route, in their marches between Niniveh and Azerbáján; and Ptolemy perhaps indicates the same line in a series of names which he connects, from west to east, between the 37th and 38th degrees of latitude.† Ascending to a higher antiquity, this must have been the road described to Xenophon when he was at the foot of the Carduchian mountains, as leading in an easterly direction to Ecbatana, and from thence to Susa:‡ and it probably was first formed into a great line of communication not many centuries before that period, when the rise of the Median empires followed on the destruction of Niniveh. That the inscriptions of the two Keli-Shíns are referable to a Median dynasty, I think there can scarcely be a question—the writing is in the Median character, the position upon the Median frontier. That the pillars were erected on the occasion of some great triumphal march, may also be reasonably admitted; but whether by Arbaces, when he was conveying the captured treasures of

* Asseman, tom. ii. p. 256. I now find that this notice occurs during the time that the metropolitan seat was fixed at Ushneí, and that it cannot therefore be taken as a proof of the line of communication: the following extract from Yáqút, however, is even stronger evidence:—"Oshnoh, a town on the road to Azerbáján, conducting from Arbil. It is 5 stages from Arbil and 2 from Urumíyeh, being situated between the two cities."—*Morásido-l Ijtíla'*. In this estimate two days must be allowed between Ushneí and Sídek; the distance is reckoned at 10 hours, and caravans usually halt the first night at Haik, immediately below the Keli-Shín pass.

† Lib. vi. c. 2.

‡ In my succeeding memoir I shall notice many other instances where this line is to be recognised in ancient history.

Sardanapalus to the Median citadel of Ecbatana at Hamadán, or by Cyaxares, on his return into Media Atropatene from the second destruction of Niniveh, cannot, of course, be determined until the Median writing shall be as well illustrated as the Persian, and one of the inscriptions shall have been thus correctly translated.

The form of the pillars may also be considered a scarcely less curious object of inquiry. There are many circumstances which lead to a belief that these monuments, in remote antiquity, were connected with a worship of the two principles of generation and fecundity;* and I cannot help entertaining a suspicion, that the pillar, embedded in its pediment, may be intended to convey a rude representation of the mystical union of the Lingam and Yóni, an idea which perhaps may derive further support from the pillar's being engraved only upon its eastern face, as though it conveyed an invocation to the fructifying rays of Mithra, on their appearance above the far horizon, to impregnate with abundance and fertility the rich plains of Media, that lie spread beneath the mountain. I have mentioned the superstition of the Kurds, which connects the pillar of Keli-Shín with the natural dangers that attend the passage of the mountain. Another belief is also prevalent that the two pillars form a talisman for the preservation of some hidden treasure; but the best informed regard the Keli-Shín of Ushneï as a landmark to determine the territorial frontier between Persia and Kurdistán, and to such a purpose it is applied at present, for the Zerkás claim all the country on the eastern face of the mountain, and concede all beyond the pass to Rowándiz.

I learnt at Ushneï that Schultz had succeeded, some years before, in reaching the Keli-Shín, and had copied a great part of the inscription; but this was upon his last journey, and the copy must thus have been lost with his other papers at Júlamerik. No other European has, I believe, seen this singular relic of antiquity.

During the lifetime of the late Mir of Rowándiz, the whole country from Ushneï to the Tigris, and as far south as the lesser Záb, was subjected to his rule. The Mir's own tribe was that of Sohrán, an ancient and honourable clan, the chiefs of which conquered the Rowándiz country between 400 and 500 years ago, and have retained possession of it ever since.† This tribe is

* Thus the pillars of Sesostris, engraved with the Lingam and Yóni, the *εγκλη* of Semiramis, which seem all to have a reference to the same worship, and many other similar monuments, which are, I believe, (for I have never seen the work,) enumerated by Mr. O'Bryan in his "Round Towers of Ireland."

† Sheref Khán, the author of the Kurdish History, pretends to derive the name of Sohrán from Sor or Sohr, the Kurdish for "red," in allusion to the rocks of that colour upon which is built the fort of Rowándiz; but this is probably mere fable.

limited in number, amounting to no more than 800 families; but from having given rulers for so long a period to the surrounding country, who frequently asserted and maintained their independence both against Persia and Turkey, it is regarded by all the Kurds with great respect. The inhabitants of Rowándiz are for the most part Rewendís,* a very large tribe, numbering, with its dependencies, about 12,000 families, who serve under the Sohráns, in the same way as the numerous clans of Soleimá-níyeh are all subject to the Bábán aristocracy. The fort of Rowán or Rowándiz has been the strong place of the Sohrán chiefs from their first establishment in the mountains, but their more usual places of residence have been Shakkábad and Herír. It was only under the late Mír that Rowándiz became the capital.† The town is situated on the southern bank of the greater Záb, called here Rúbári-Rowándiz. It occupies a narrow valley under the Bení Henderín hills, and is protected by a very strong fort, which is built in a little bay on the acclivity of the mountain: it is estimated to contain about 2000 houses.

The Záb is here very narrow, but rapid and impetuous, and hemmed in between high rocky banks; it is crossed by a bridge of trees thrown over the channel of the river from two strong projecting piers of solid masonry, and when this is removed, the town is perfectly secure against attack from the northward. Rowándiz is situated midway in the mountains, between the plains of Assyria and Media, at the distance of about 15 or 16 hours from either.‡ Sidek is a considerable mountain district, on the line between Rowándiz and Ushneí; it contains perhaps forty little villages, dispersed among the clefts and ravines of the hills, and is inhabited by about 1000 families from the tribes of Rewendek, Píresúí, Bálikí, Rísúrí, and Shírwáni. Sidek formerly belonged to 'Amadíyah; by the late Mír of Rowándiz it was annexed to his own possessions, and it still remains attached

* I cannot doubt but that the fort of Rowándiz is named after the tribe Rewendí: the names at the present day are written and pronounced differently. The tribe of Rewendí is divided into 12 Máms or branches, of which the following are the names:—

Mámírd	Mámál	Mámles	Mamúí
Mámásám	Mámekál	Mámsekí	Pírbál
Mámsál	Mámsíl	Mámíkhál	Kelá

There are also a great number of dependent tribes, which, although not originally of the same stock as the Rewendis, have been long associated with them, and now generally assume their name. The following are the principal:—Sheikháb, Málibas, Núrik, Henáráí, Kheílání, Kásán, Sheikh Mehímádí, Bámámí, Deríjhkí, Sekúí, Hirbái, Shikálí, Mendik, Pírájhí, and Bálmár, containing seven minor divisions. For ancient notices of the Rewendis, see my other memoir, p. 73.

† The fort of Rowándiz is, however, named in the Syrian history as early as A.D. 1207, as the strong place of the mountain chiefs. See Greg. Bar. Heb., vol. ii. p. 463.

‡ I take this account of the town of Rowándiz partly from Dr. Ross of Baghdád, who is, I believe, the only European that has ever visited it, and partly from the information of the Rewendis, with whom I conversed at Ushneí.

to the chief of that place, though at the time of my visit Isma'il, Páshá of 'Amádiyah, who since the removal of the Mír by the Porte has succeeded to the greater portion of his mountain dominion, was preparing to re-assert his claim.

Immediately beyond the mountains W. of Ushneî is another district called Káni-résh,* which borders upon Sídek to the northward. This is inhabited by the Berádúst tribe, a clan of much celebrity in Kurdish history, as the former chiefs of Súmáî and Terkúr, but now reduced to some four or five hundred families. The Berádúst possess nearly a hundred little villages, and acknowledge the supremacy of 'Amádiyah. To the N. of the Berádúst are the territories of the Hekárrí, and to the W. a number of petty tribes are scattered about, who are all dependent on 'Amádiyah. But one of the most considerable tribes who inhabit this part of Kurdistan, in the present day, are the Bálikí; and it is singular that I neither find their name mentioned in the Kurdish history, nor, as far as I am aware, has any traveller penetrated into their country, or acquired any information regarding them. They number above ten thousand families, and inhabit a very strong and secluded country beyond the great range of Kendilán, which forms the prolongation of the Ushneî mountains, and bounds the plain of Láhiján to the S.W. The Bálikís are a very powerful tribe, and their country contains perhaps 200 villages. The capital is named Ráyát. The Mír of Rowándiz brought them under his sway; and, taking a male from each family into his service, as was his usual custom, the Bálik contingent proved of great service to him. When I was at Ushneî I was told that the greater part of the garrison of 'Amádiyah which had held out against Ismá'il Páshá for nearly three years, under the brother of the old Rowándiz chief, was composed of Bálik Kurds. Bálik appears to be the name of the district which has been taken up by the inhabitants, refugees, probably, from the neighbouring clans; and is now applied to designate this great independent tribe.

Since the removal of the Mír of Rowándiz no tribe has attempted to interfere with the Bálikís; and 'Azíz Bég, the present chief, will acknowledge no superior, either Persian, Turk, or Kurd. I was very anxious to visit Ráyát, which lies at the distance of 18 hours, nearly due S. of Ushneî, for I heard a number of curious stories regarding treasures and talismanic sculptures, which are usual indications among the Kurds of antiquarian remains; but I could not prevail on Ghásúr Khán, to leave his fort and accompany me; and without his escort he assured me

* "The black fountain," Kurd.

it would be dangerous to venture among the wild mountaineers, who live under his relative's sway.*

Much curiosity, I am aware, is alive at present regarding the antiquities and geography of Kurdistán, and, as I have had a good deal of intercourse with the inhabitants of that part of Asia it may thus perhaps be useful to give the benefit of my experience to travellers desirous of penetrating into the many wild and unexplored regions of this mountain-country. I consider attempting to visit Kurdistán in any disguise as quite impracticable, the protection of a government, either Turkish or Persian, is fraught also with danger rather than advantage. The most safe, and at the same time the most agreeable way of travelling in Kurdistán would be to visit, in the first place, a frontier chief, whose connexion with his government, either Turkish or Persian, would oblige him to assist and protect the European recommended to his care; this chief then would be able, from his connexion with the tribes in the vicinity to pass the traveller on to another chief in the interior, and from thence, availing himself of the same means of introduction and protection, he might penetrate to still more remote regions until he had reached the objects of his search. Thus from the Persian frontier Ghafúr Khán would be able to pass a traveller on to Júlámerik, retaining some of the Hekárri chiefs, who are usually with him, as hostages for his safe return. The Hekárri chief, Núru-lleh Khán, might transfer his charge to the Chaldean patriarch of Kóch Hannes, taking the same precautions for his safety, and under the protection of the patriarch, the Tiyári tribes might be visited, I conceive, with little danger. Perhaps upon the Turkish side from the 'Amádiyah frontier, the plan might be adopted with equal advantage; but any direct interference of the Turkish or Persian government would certainly be attended with extreme danger; indeed, I was assured at Ushneï that the tragic death of the lamented Schultz was owing entirely to this cause:—when he visited Ushneï, Samed Khan, the Governor, offered to send an escort of his own Zerzá Kurds with him, to Júlámerik, detaining a nephew of the Hekárri chief, who was with him at the time upon a visit as security for his safe return: Schultz unfortunately declined this offer, and preferred the direct protection of the Persian government through the Afshár chief of Úrumiyah; he consequently returned to that place, and took with him as his guide an Afshár soldier, hateful to the Hekárris, as well from being the servant of the Persian government, as from belonging to a tribe opposed to them in nation, in language, and in religion, and with whom they were constantly at feud. Schultz was thus regarded by the

* The mother of 'Azíz Bég was a sister of Ghafúr Khán's, and a close connexion is thus kept up between the Zerzá and Bálik tribes.

Hekárris as a government emissary, and his inquiries about anti-quities were explained by his supposed errand to survey the country and discover the best route for the Persian guns.

From the fort of Ghafúr Khán I retraced my steps in the evening to the village of Sirgán, where I was most kindly received by Lúti Beg, the eldest son of Semed Khán, who, I should have mentioned, was absent with the army at Herát, and had entrusted the government of Ushneî for the time to his brother Ghafúr. This Lúti Beg was one of the finest young Kurdish chiefs that I ever saw. In form and face he was a perfect specimen of manly beauty; and the quiet business-like way in which he related for my amusement his various feats of arms with the Bilbás and Rewendis, struck me most forcibly after the blustering and noisy braggadocio of the would-be warriors of Persia. He was really a study for a painter, and his tales were among the most stirring that I ever heard in the whole range of wild and daring enterprise with which the border story of the Kurds is so richly fraught.

27th.—To-day I made a long stage of nearly 30 miles to the village of Mohámméd Sháh, at the farther extremity of the Soldúz plain. For 10 miles I followed down the course of the Gáder river, through the Ushneî plain, in an E.S.E. direction, passing a great number of villages both to the right and left: here the prong of hill which I had crossed at the pass of 'Alí-Harámí in entering the Ushneî district, terminated in a low point, leaving a little valley scarcely 200 yards across, for the passage of the river, from the plain of Ushneî into that of Soldúz. To the right was a more elevated range, which, striking off from the great mountains below the Keli-Shín pass, divides the plains of Ushneî and Soldúz from that of Láhiján, and then branches out into a multitude of lesser hills that intersect all parts of the Mikrí country. In the valley, between the hills, are two villages of the name of Derbend—one belonging to Ushneî, and the other to Soldúz. From hence I skirted the foot of the hills to the right, along the whole extent of the Soldúz plain; and in a line nearly parallel to my former route upon the other side of it. I had again occasion to observe the singular fertility of this favoured district, the great canals derived from the Gáder river, the rice grounds, the pastures, and the thriving villages. Mohámméd Sháh, where I took up my quarters for the night, is one of three villages at the south-eastern extremity of the Soldúz plain, which were excluded from the Kará-pápá grant, and conferred upon a small party of the Shemseddinlú, who also seceded, during the last Russian war, from the great tribe of that name, settled in Georgia, and sought the protection of the Prince Royal of Persia. This offset of the Shemseddinlú only number a hundred families; and they have a hundred families of Mikrí ra'yyats, the old

inhabitants of Mohammed Sháh, to cultivate the lands assigned to them. They also furnish a contingent of fifty horse to the crown, and receive the revenues of their small district (about 300 *tómáns*, in part payment of the allowances which were settled on them upon entering the service of Persia, and which amount to 2000 *tómáns*. The district of Mohammed Sháh, at a distance from the valley of the Gáder, is ill supplied with water and unproductive, and the Shemseddinlú look with envy on their more fortunate neighbours, the Kará-pápás, who realise double their amount of pay from the rich lands which they enjoy, while they themselves can barely gain a subsistence from the miserable pittance that has fallen to their share. The direction of Mohammed Sháh from Derbeñd, at the other extremity of the plain, was E S.E.

Mohammed Sháh is named in the Sheref Námeñ as the third great division of the Mikrí country, though it is difficult to understand how so steril a tract could have ever formed a district of any consequence.

28th.—My route to-day led among the hills which I have before spoken of, as a derivation from the great chain below Keli-Shín; and after winding about for 8 miles in a general direction of S. 55° E., conducted to the summit of a pass that overlooked the little valley of Só-új Bólák, and commanded a fine view of the town of that name, distant about 2½ miles. Immediately upon leaving Mohammed Sháh I had entered the country of the Mikrí tribe, whose capital is Só-új Bólák. This town has been visited by many travellers, and I need not therefore be very minute in my description. It is situated in a narrow valley among the hills, on the right bank of a considerable stream which flows from the range W. of the town, and not from the plain of Láhiján, as laid down in Col. Monteith's map. The town is quite a modern settlement, scarcely indeed 100 years old: it contains about 1200 houses, of which 100 are Jewish, and about thirty Nestorian Christian; the remainder are all Mikrí Kurds. The appearance of the town rising up in stages from the bank of the river, and covering the slope of the hill, is very pleasing: the left bank of the river is bordered with rose-gardens and orchards; and a number of vineyards and plantations have also been laid out and planted to the S. of the town. There is a considerable traffic carried on at this place in gall-nuts, gum-mastic, and the other products of the Kurdistán forests; which are brought to Só-új Bólák from the neighbouring districts, and here sold to the merchants of Tabriz. One of the great caravan routes between Tabriz and Baghdád also leads through Só-új Bólák; and thus, altogether, it presents a scene of bustle and animation which one is hardly prepared for in a town inhabited by Kurds, who are notoriously averse to the active occupations of peaceful life.

I remained at Só-új Bólák two days, a guest of the chief, who is charged with the revenue administration of the tribe; and I then set out, in company with another chief, to visit Láhiján, to which my attention had been drawn by a curious account published in Sir R. K. Porter's travels, of a certain petrified city named Karinj, or rather Khorenj, that had been described to him by an old Bilbás Sheikh, as existing in that neighbourhood. At Só-új Bólák I heard divers marvellous stories of this spot, and also of certain pillars apparently of the same class as the Keli-Shín of Ushneï; and being so near the place I could not resist the temptation of visiting it.

31st.—From Só-új Bólák I followed up the course of the river for 2 miles, to the confluence of the two streams of which it is formed; and then keeping along the banks of the right branch through a narrow glade, I wound along for seven miles further, gradually ascending till I found myself at the foot of the chain, among the roots and branches of which I had been travelling ever since leaving the plain of Soldúz. Here we quitted the stream at this point, a rapid brawling little brook, and struck up a steep rocky glen, which, at the end of 3 miles, conducted us to the summit of the pass. The direction of Só-új Bólák was pointed out to me from the top of the hill, due E.; and a deep precipitous gorge led down N. 80° W., into the fine plain of Láhiján, which was seen stretching out beyond the jaws of the pass, to the foot of the great Kurdistán mountains, here called Kandil, or Kandilán, rising up like a gigantic bulwark of defence, and affording, with their snow-capt summits and dark serrated sides, the same magnificent background to the view that I had admired so much at Ushneï. Proceeding down the glen for 5 miles we reached the village of Legwin, just at the end of the pass, and then opened out into a fine valley which led into the plain of Láhiján. About 3 miles beyond, to the right, was the famous city of Khorenj, which I found to be nothing more than a long low hill; the extreme prong of the range that I had crossed, stretching out into the plain, and covered over its whole extent with a multitude of loose rocky fragments of all shapes and sizes, lying about in a strange chaotic disorder, and metamorphosed, in the imagination of the Kurds, into the petrified figures of men and animals. There was positively not a single trace of artificial workmanship in the whole mass; and I thus learnt another lesson of caution in attending to the wild exaggerated stories of the Kurds, regarding their local curiosities.

From the hill of Khorenj I went on 2 miles farther, to the pillar of Keli-Sípán; and here I certainly found a monument which appeared to be of the same class as the Keli-Shín, but with no inscription to repay me for the trouble of my visit. The Keli-

Sípán, or white pillar, as its name implies, is a rude column of white stone, 12 feet in height, 3 feet in breadth, and $1\frac{1}{2}$ feet in depth, fixed in a pediment, and differing only in size and colour, and the want of an inscription, from the one which I have already described. It faces also W.N.W. instead of due E., like the Keli-Shín. There are some rude figures like a horseshoe, engraved upon different parts of it, which had been taken by the Kurds for writing. Between this pillar and the village of Legwin, there is another which is also called Keli-Sípán, but it has been thrown down, and is of smaller dimensions even than the Keli-Shín; this likewise, on the three sides which are exposed, is without inscription. I had further heard at Só-új Bólák, of artificial grottoes in the mountain adjoining the Keli-Sípán, which had appeared to me, from the description, of the same class as the Persepolitan tombs: on inquiry, however, from the guides who had joined me from Legwin, I was here again doomed to disappointment; they knew of nothing but one cave, high up in the face of the precipice, and inaccessible except to a mountain goat or a Bálikí,* and this, from their accounts, was evidently a mere natural fissure. The Keli-Sípán is at the foot of a very steep and precipitous rock, which forms the southern boundary of the valley, down which I had proceeded from Legwin; the rocks of Khorenj being the northern limit of the same vale. Upon the table land at the summit of this hill, I learnt there was a very strong and extensive fort, defended, in the greater part of its circuit, by the scarp of the natural rock, and strengthened by walls and buttresses wherever there was the possibility of access from below. The day, however, was too far advanced to admit of my attempting to climb the hill, and I was told I should find nothing more than the mere ruined walls and a few tanks excavated in the rock to supply the garrison with water, to repay me for the labour of ascent.

Láhián is a fine open plain, abundantly watered, and possessing a rich fertile soil, most favourable to agriculture. The source of the lesser Záb is in the Legwin valley; from hence it flows down into the Láhián plain, where it is joined by a multitude of little streams from the Kandil mountains, and then, passing along Sardasht, it forces its way through the great chain, and descends into the plains of Assyria; and this course is not a little singular, for the features of the country would lead one to believe that the waters of Láhián, on the north-eastern face of the great mountains, must necessarily flow into Persia, as Col. Monteith has laid

* The name is used proverbially in this part of Kurdistán to denote an expert cragman.

down in his map; the contrary, however, is undoubtedly the case. The Láhiján river, even at its very source, is named the Zeï,* the usual pronunciation of Záb among the Kurds, and I took some pains to verify its identity with the Altún Sú, or Lesser Záb.

Láhiján, on the immediate frontier of Turkey and Persia, has been inhabited at different times by tribes subject to either government. It has belonged successively to the Zêrzá, the Bábán, the Mikrí, and the Bilbás; and its present condition partakes of this anomalous nature; for though acknowledged as a Mikrí possession, and though the proprietorship of the lands belongs to the Mikrí chiefs, it is inhabited almost exclusively by the Bilbás, a tribe of Turkish Kurdistan, who still pay 1000 tó máns a-year to the Mikrís for the rent of the district.

The Bilbás are considered by the Mikrís as an offset of their own tribe; and from their not appearing under their own name in the Sheref Náneh, I conclude this to be really the case. They have been long separated, however, and have continued roaming about the frontiers of Persia and Turkey, transferring their allegiance from one government to the other, as expedience suggested, until it seems difficult to say among the subjects of which nation they ought properly to be included. About 20 years ago they had risen to such power that they were, alike, a terror to the Afshárs, the Mikrís, and the Mokeddems. The Mikrí country they had entirely overrun; and it was not until Ahmed Khán of Marághah, the famous Mokeddem chief, invited all the leaders of the tribe to a great banquet, where he murdered 300 of them in cold blood, that the South of Aذربiján recovered its tranquillity. For some years after this they were hunted from the face of the country like wild animals, and were obliged to take refuge within the Turkish frontier, where the Mír of Rowándiz found them, when he rose into power; and by again slaughtering their most distinguished chiefs, brought them under some order and obedience. Since the removal of the Mír they have partly relapsed into their old predatory habits; and are now regarded as among the most turbulent and treacherous of all the border tribes of Kurdistan. Their power is so broken, that, at the present day, they cannot pretend to meet the Mikrís in open combat; but still, to prevent their depredations and retain them in some sort of vassalage, that tribe has been content to relinquish to them the rich district of Láhiján, where parts of the two divisions of Mengúr and Mámish are now settled, gradually adopting agricultural pursuits, and passing from a nomadic to a fixed life.

* Zeï among the Kurds may be almost said to be a generic name for a river; for as the two Zábés collect all the mountain streams between the Hekárrí country and Shehrizúr, so the name of Zeï is found attached to nearly every river that is met with.

The third great division which, indeed, includes nearly half of the whole tribe, is named Pirán.* These, with the remainder of the Mengúr and Mámish, still adhere to a wandering life, pasturing their flocks in summer upon the Persian frontier, along the skirts of the mountains, from Sardesht to Ushneî; and retiring, on the approach of winter, far within the Turkish line, to the warm pastures of Beitúsh and Germián, on the banks of the Lesser Záb. The Bilbás consider themselves as dependent upon Turkey; but some of their chiefs have lately made proposals of allegiance to Ázerbíján; and the government is naturally anxious to induce them to settle permanently within the Persian frontier. They number about 5000 families; but they can bring even a larger number of horsemen into the field; for, contrary to the usual habits of the tribes, several brothers frequently live in the same family, and nearly every Bilbás † is provided with his horse and spear. Fire-arms are used by the Bilbás in all their mountain warfare: but for a foray on the plains they usually take the field with spear and shield, mounted on active, little, high-bred horses, admirably bitted; and the leaders, for the most part, wearing steel helmets and shirts of mail. The parties of the Bilbás that I have seen, appeared to be dashing horsemen; but they are not considered among the tribes as equal to the Mikrí, the Bábán, or perhaps the Zerbá.

The capital of Láhíján is named Péshwá: it is distant about 3 miles N.W. of Keli-Sípán, and forms the residence of the Mámish chief; the Mengúr lands lie to the S.E. farther down the plain, where there are, also, two large villages, named Terkúsh and Lálá. I can find nothing of interest connected with the ancient geography of Láhíján, unless, indeed, the town of Lahika, where the Nestorian Catholicus is stated to have confined a rebellious monk, in the 13th century, when he held his ecclesiastical

* The Bilbás comprise the following divisions:—

Pirán. Containing	Mengúr. Containing	Mámish. Containing
Mokháneh.	Kádír Weisí.	Hemzeh A'gháí.
Berehem.	Zúdí.	Merbúk.
Morik.	Rasgeí.	Jokhúr.
Yúsuf Khelikah.	Babresú,	Beláwend.
Sebremá.	and	Merhabekrá.
Sétá.	Mernekená.	Fekéh Wetmánab.
Westápirá.		Sinn,
Wermeziyár.		and
Nánákeli.		Ránik.
Hessen A'gháí.		
Mámádesíná,		
and		
Péwa.		

† The Bilbás Tufengchís (or match-lock men) are excellent marksmen; and their assistance is eagerly courted by the Kurdistán chiefs in their struggles among each other for power.

court at Ushneï,* on the removal of the metropolitan see from Niniveh, can be supposed to refer to the capital of this district.

I returned in the evening from Keli-Sipán to Legwin, where the presence of my Só-új Bólák friend secured me a hearty welcome, from the old Mikrí white beard; who, with a hundred families, still continued to occupy and cultivate this little district, notwithstanding the close vicinity of his enemies, the Bilbás. The old man had a family of ten sons, all inured to battle from the cradle: they had escorted us from Legwin to the Keli-Sipán, and, on our return, showed off, for my amusement, the various feats of horsemanship for which they were celebrated throughout the tribe. Their rapid charge, crouched up in a ball upon the saddle, behind their little round shield, and with the long spear held well in front, was really superb. The Cossacks had no chance against the Mikrí horse in the last Russian war: on one occasion, in particular, the Mikrís† chased the whole Russian cavalry from the field, and several of these very brothers had particularly distinguished themselves in the action. The old man proudly offered, for the honour of the Mikrís, to match this little band of brothers against any party of horsemen in the world, equal to them in numbers; and, as far as the East was concerned, he was probably right, for the Mikrí are by far the best cavalry in Persia, and these ten horsemen were about the best in the whole tribe.

Returning to Só-új Bólák by the same track which I pursued in going there, I again took up my quarters with the Mikrí governor. This tribe is one of the strongest and most powerful in Persia; it numbers above 12,000 families, and the tract of country which it occupies measures about 40 miles in length and 50 in breadth, extending N. and S. from the Miyándáb plain to Kurdistán proper, and E. and W. from the valley of the Jaghatú to the mountains. The Mikrís have almost entirely abandoned a nomade life, and are settled in villages; but still, on the approach of summer, they adhere to their old habit of removing into black tents, which they pitch on the outskirts of the village. They are

* See Asseman, tome ii. p. 256. The prison, however, is said to have been in the monastery of S. Abraham, which certainly recalls to mind the Deir Sheikh Ibráhím, of Sirgán.

† The Mikrís are divided into the following *tíreh*s (or minor tribes), many of which, again, have smaller sub-divisions:—

Bábá Amíreh, pronounced Bábáméri.

Deh Bokrí, the financial governor is of this tribe.

Khelki.

Sheikh Sherefi.

Selekei.

Hasan Kháli.

Kárish.

Silki.

Sekír.

Gúrik.

Fekiyesi.

Ables.

Bárik.

Soleimání,

Bayí.

'Omerbil.

Merzink.

Létáú.

Máwet and

Shiwezái.

very lightly taxed by the Persian government, paying, nominally, but 22,000, and, in reality, not more than 25,000 *tómáns* a year; which is not above half the sum that their assessment should reach, according to the general revenue system of the province. This is a politic measure, no doubt, for as Sunnis and Kurds, the Persian crown has no hold whatever on their allegiance; and they are, at the same time, too powerful to be coerced into anything like tame submission. They are, only, directly liable to furnish 200 horse for the service of government; but in any great national cause, which did not outrage their Sunni feelings, they might supply a body of most efficient cavalry, numbering from 4,000 to 5,000 horsemen, and still retain enough hands to gather in their crops, and protect their own country against aggression. Their present revenue system seems to be peculiar to themselves. The country, acquired in war, was originally held as direct property by the chief. From him it descended to his family, and thus, at the present day, the proprietorship of almost the whole of this extensive country is in the hands of a single family, the Bábá 'Amíreh sprung from a common ancestor, the famous Amíreh Páshá, a Mikri chief, who rose into great power in the sixteenth century, when Tabriz and the adjacent districts fell under the rule of Constantinople; and who, for his distinguished services in the Turkish invasion of *Azerbiján*, was rewarded by Sultan Morád Khán with the governments of *Mósul*, *Arbil*, the *Bábán*, and Mikri countries, and *Marághah*.^{*} But this small family of the Bábá Amírehis, which does not number above fifty or sixty people, cannot be supposed capable of cultivating all the lands, and a system has been thus introduced, by which the chief of the tribe can assign any portion of the country that he pleases to the care of other inferior leaders, who are called *Aghás*, with or without the consent of the proprietor. The produce is then divided according to the following proportions:—the Bábá Amíreh landlord receives a fifteenth in right of his hereditary proprietorship; the *Aghá*, or farmer, who is the responsible agent to government, a tenth; the *Zerá'et-chís*, a class of people who are supposed to understand the science of agriculture, and who superintend the cultivation, a fifth; and the remainder is shared between the expense of tillage and the price of labour, according to the different arrangements for farming which exist between the *ra'yyat* and *Aghá*; the most common is what is called *Nisfeh-kári*, where the expenses and produce of cultivation are both shared equally between them; the *Aghá* taking upon himself all the government liabilities as the equivalent of the labour bestowed by the *ra'yyat*. The tenth claimed by the *Aghá*, independently of

† See *Tárikhi-Akrád*.

this arrangement, is ostensibly the government share the 'Ushrá exacted in all Sunni countries; but, practically, it does not work so. The revenue to be realised is distributed by the chief among the different districts, at an average rate of two *tómáns* a family, and the Aghá, or Bábá Amíreh proprietor, if he farms his own land, is then at liberty to apportion the assessment among his *ra'yyats*, in reference to his own knowledge of their capability to contribute.

I have mentioned that among the great tribes the condition of the peasantry is far superior to their state under the direct administration of the government or the control of any foreign master; who, to fulfil his terms of contract, or to gratify his own avarice, is sure to wring from them their last penny. Among the Mikris this is particularly observable: in detached villages or districts, if the peasantry are forced by oppression to vacate their lands, they can be reclaimed by the chief whom they have deserted; but here they are all of one tribe, and should any chief burden his *ra'yyats* with an undue assessment, they have merely to migrate a few miles to the milder rule of another, leaving the landlord to realise his revenue as he best may. The Aghás are thus obliged, for their own interests, to cherish and protect the peasantry that cultivate their lands; and I really believe that there is also a strong and most pleasing feeling of mutual attachment, which makes them cling to each other under all circumstances, and regard each other's welfare as identical. The Mikri chiefs declare that they value a family of their own *ra'yyats* as equal to two or even three Turkish families. The Kurd never visits his chief without the offering of a lamb or sheep; and in any exigency, where he is suddenly called upon to produce a large sum of money, the chief is sure of being cheerfully assisted by all his *ra'yyats* to the utmost limit of their means; while the sulky Turk will never pay one fraction beyond his due, except upon compulsion; and even to obtain this due there is a constant scene of prayer and protestation upon one side, and of abuse and violence upon the other. Still, however, the Kurds are half savages, and have no idea of personal comfort: and thus the traveller, in passing casually through the country and perceiving their dirty miserable villages, is apt to infer distress and poverty, and to argue the inferiority of their general condition to that of the peasantry of other countries.

November 2nd.—I left Só-új Bólák, much gratified with my sojourn among the Mikris, and travelled 25 miles to Merhemet-ábád, in the Miyándáb plain. Following down the course of the river of Só-új Bólák, in a N. E. by N. direction, I passed the large village of Yúsuf Kend at 3 miles. Here the valley became more open; and there was a limited extent of rice ground. At

1 mile farther I crossed the left bank of the river to inspect some curious antiquities. The first was an isolated rock called *Sheitán-ábád*.* The face of it had been smoothed in many places with the chisel; and a large passage, which looked like an aqueduct, had been excavated through it. This passage being now almost entirely open to the day, as though the outer surface of the rock, which was of a soft yielding nature, had been worn away until it reached the aqueduct within. At the distance of a few hundred yards from this, lower down the river, there was another rock, called *Saukend*, where I found still more interesting remains. The lower part of this, facing the river, had been all artificially smoothed; and the greater portion of its conical surface above had been cut into regular flights of steps, which conducted to a little platform on the summit, where, however, I could find nothing more than a single small reservoir, hollowed out of the rock, with four holes at the corners, that appeared intended for pillars to support some canopy over the water. Through this rock also had been excavated a narrow winding passage, which I conclude to be a continuation of the aqueduct of *Sheitán-ábád*, the intervening communication, which must have been raised very considerably above the ground, having disappeared in the lapse of ages. I crept into this passage, on my hands and knees, until I reached, at some distance within, a low chamber, the purpose of which I could not at all comprehend. I could find no trace of sculpture or inscription; but the base of the rock on the scarped side, where would be the most likely place for a tablet, is concealed by the banks of a modern canal that has been excavated just beneath it. The labour that has been bestowed on the exterior face of the rock seems to indicate that it must have been anciently surmounted by some building; and I conclude this to have been a fire temple; but if such really were the case, it has now altogether vanished, and left the natural pediment alone to mark its site.

I then recrossed the river to the neighbouring village of *Inderkúsh*, and there procured guides to conduct me to the place, named by the Kurds, *Fakhrakáh*, which, from the description, I had rightly conjectured to be an ancient tomb, of the same class as those at *Persepolis*. I reached this at the distance of a mile from *Inderkúsh*, and found the excavation, as usual, high up in the face of a precipitous rock. My *Mikrí* guides ascended the face of the rock like cats, and then drew me up with ropes; the perpendicular height, after climbing up the hill as far as I possibly could, being about 30 feet. The outer chamber of the excavation was 8 paces in width, and 8 in depth; the height being 12 feet. Here there was a recess raised one step from the outer chamber,

* Literally "the devil's habitation."

and supported by two massive pillars with circular bases and capitals, all cut out of the solid rock. Within this, again, and raised two steps higher, there was a second recess, also supported by two pillars, and containing, at its inner extremity, three places of deposit for the dead; one 8 feet in length, and 5 feet in breadth, and the other two about half that size: the depth of all three being about 2 feet.

The tomb must have been excavated for some ancient sovereign and his two children; but inscription or sculpture there was none to indicate even to what dynasty it was to be referred. Among the writings, however, on the walls of the tomb, where visitors are usually in the habit of recording their names, I found a set of inscriptions which I am inclined to regard as very singular. From their being written in ink, or some composition resembling it, I could not at first suppose them of any antiquity; but when I began to copy the characters, I found they must have been inscribed when the face of the rock was smooth, and had suffered little from exposure; for their only illegibility arose from the surface of the rock being worn away in many places, which broke the continuity of the writing. If the lines had been written after the smoothness of the rock had been destroyed, traces would have been apparent in the broken parts; but of this there was no appearance. Where the face of the rock was smooth the writing was quite distinct; where it was broken the letters, or parts of them, were effaced. The characters have much resemblance to some of the old Pehlvi writing, but still they are not identical with it; and I do not believe there is any known alphabet to which they can be uniformly assigned. I attribute them to some ancient visitors of the tomb, long anterior to the introduction of Islamism. All these remains seem to indicate the site of some ancient city in the vicinity; and accordingly we find in Kurdish tradition a large tract of the adjacent valley now irrigated by the river, and wholly under cultivation, named Shári Verán, and believed to have been the position of an immense capital.

I am at a loss, however, I confess, to explain in any satisfactory way the name of Shári Verán. There has certainly been no city of any consequence at this spot for the last thousand years; and I can scarcely admit the similarity of the title to the Vera of Strabo to be of any weight against the mass of evidence which would assign that city to a different emplacement.*

From Fakhrakáh I struck across the low hills in a direction of E. by N., leaving to my left the valley of the Só-új Bólağ river, and the marshy lake where that river loses itself, which I saw in the distance; and at the end of 8 miles again descended into the

* See the following Memoir, pp 113 and 133.

Miyándáb plain : 10 miles across the plain, in the same direction, crossing at the 7th mile, the Tátáú river brought me to the large village of Merhemet-ábád, the capital of the district, and only known at present in the country by the title of Shehri-Miyándab. This was formerly a very considerable town : the late prince royal proposed to make it the head-quarters of his artillery. He built here a fort and palace, and gave it the new title of Merhemet-ábád. The place is now half-ruined ; but it still contains above 1000 houses, among whom are twenty Armenian Christians and forty Jews.

The great Miyándáb plain is chiefly inhabited by Turks, of the tribe of Mokeddem ; some of them residing permanently in villages, but the greater part living in black tents during the summer, and retiring to their *kishláks** (clusters of little thatched dirty cabins) in winter. I have mentioned the fine rich soil which this plain enjoys throughout. About Miyándáb it is highly cultivated ; and, again, a short distance to the eastward, where a very considerable stream, called the Leilán Sû, is wholly absorbed in irrigation, the production of rice is immense.

3rd.—This morning I rode over from Miyándáb to inspect the ruins of Leilán, laid down in Colonel Monteith's map as the site of Canzaca. I crossed the Jaghatú at $\frac{1}{2}$ a mile, and reached Leilán at 6 miles farther, the direction being N. 64° E. The great ruin I found to be a quadrangular inclosure, about $\frac{3}{4}$ of a mile in length, and half that distance in breadth, composed of a line of mounds, some 40 or 50 feet in height. Within the area there was hardly any trace of building ; but without, on the southern face, a large mass of broken ground indicated the site of a considerable town. There could be little question, from the character of the mounds, that the fort was of some antiquity ; but its claim to be considered as the representative of Canzaca I shall discuss in my memoir on the Atropatenian Ecbatana. It is called by the peasantry *Kal'eh-i-Bákhteh* ; and they have a tradition that it stood a successful siege, of seven years, against some Feringí warrior who attacked it. The present village of Leilán, a small miserable hamlet, is at the south-eastern angle of the fort.

From Leilán I again struck across the plain, in a direction of S. by E., to the Jaghatú river, which I recrossed at 7 miles, just at the point where it debouches into the open country. Here I crossed the high road to *Şe'in Kal'eh*, and re-entered the Mikrí country. Ascending gently from the bank of the river, I then continued for 7 miles farther, over an undulating down, in the same direction of S. by E., until I reached the village of Armeni

* *Kishlák* is the winter residence, in contradistinction to the summer pastures, or *yáílák*.

Boláki, in a fine open valley among the hills, and took up my quarters with a Mikrí chief, whom I had been disappointed in meeting at Só-új Bolák, and whom I took this opportunity, therefore, of visiting upon his farm in the country.

The district in which I now was I found to be denominated Beyí.* It was an old possession of the Mikris; but being little inhabited, it had been taken from them by 'Abbás Mirzá, and conferred upon the Chárdauris,† when that tribe was first located in this part of Azerbáján. The greater part of the Chárdauris, however, abandoned their new possessions some years ago, and migrated farther to the S. Since which time the Mikrí chiefs have been busily employed in settling villages throughout the district, and thus establishing their claim to it in a way to prevent the possibility of its being again wrested from them. I found the same kind and hospitable treatment at Armení Boláki which I have uniformly experienced as the guest of a Kurdish chief, but nowhere, perhaps, to a greater extent than during my short sojourn among the Mikris.

4th.—To-day my Mikrí friend insisted on escorting me to Mohammedjik, the residence of the Chárdauri chief, and we accordingly set off together with a large party of horsemen to find our way there. For 3 miles we wound among the hills in an E. $\frac{1}{2}$ S. direction to the bed of the Jaghatú, which here runs in a narrow valley, about a mile in width, between ranges of hills, which to the west are steep and barren, to the east ascending more gradually and cultivated along their slopes. The district on the other side of the river was named A'jári, a dependency of Marághah, containing a great number of villages along the banks of the Jaghatú and the numerous streams which descend from the hills to the east, and empty themselves into it. The capital of the district is Kásháwer, a small town on the banks of the river, with a very imposing looking fort on the summit of the hill above it. After ascending the left bank of the river for a mile, we crossed over at a point where a mound, called Aqchehlí Teppeh, divided the territories of A'jári and Sa'in Kal'eh, and from hence continued along the valley in a S.E. $\frac{1}{2}$ S. direction for 10 miles to the village of Mohammedjik, situated on the rise of the hill, at the distance of about a mile from the bed of the Jaghatú.

Mohammedjik is a modern settlement, where the Chárdauri chief has built himself a comfortable residence, and has planted a large garden in the usual Oriental style, which is the wonder of

* So called from the Mikrí tribe of Beyí, by whom it was formerly inhabited.

† The Chárdauris are said to have originally come from the plain of Chárdaur, in Poshti-kúh of Luristán.

the surrounding country. The history of this district for the last twenty years affords a good illustration of the character of Persian administration. The Mehál is named Sa'in Kal'eh, from the town of that name, about 1 farsakh higher up the valley than Mohammedjik, which forms the capital of the district: it occupies the south-eastern corner of the province of Azerbiján, measuring north and south from A'jári to Kurdistán Proper about 40 miles, and east and west, from Khamseh to the Jaghatú, it may average about 30. Before the arrival of the Chárdauris it was calculated to contain 300 villages, and to be inhabited by 3500 families of the Afshár tribe, besides numerous refugees from the Mikris, the Mokeddems, and Kurdistán Proper: the government assessment was 17,000 tó máns. The Chárdauris, an I'liyát tribe, originally from Luristán, and numbering about 4000 families, were removed by the late Sháh from Fárs to Azerbiján, and 'Abbás Mírzá settled them in this district, assigning to them the revenues for the pay of their contingent of horse. The greater part of the Afshárs, jealous of the new comers, then removed to Urumiyah, and as the Chárdauris had little taste for agriculture, the lands remained uncultivated. The prosperity of the district thus continued rapidly to decline until the last Russian war, when the Chárdauris, alarmed by the occupation of Marághah, moved off to Isfand-ábád, near Hamadán, leaving only 1000 families of their own tribe, and about the same number of Afshárs, in occupation of the lands. The Kurdistánis, finding the district thus nearly depopulated, now commenced their cheppáús,* and the ruin of all its southern frontier was soon completed: scarcely 100 villages remained inhabited, and the available revenue had sunk to 4000 or 5000 tó máns. This, however, was but a prelude to further evils, and matters had been gradually growing worse since that time, until, at the period of my visit, they appeared to have reached a climax of disorder. The chárdauris, who remained in the district, still claimed the revenues, and to enable them to realise these revenues, they laid claim also to the government. The Afshárs would not hear of relinquishing the government, and having also obtained large grants from the crown for themselves, neither would they pay any revenue. Then followed appeals and references to a venal court, and each party obtained decisions in their own favour; until at last, finding that any adjustment by the interposition of government was impracticable, they had fairly taken the field, determined to fight it out on the old principle of might making right. Three different engagements had taken place, ending generally to the advantage of the Afshárs, but still without any decisive

* Cheppáú or Cheppáwel, a plundering foray.

result, and each party now held his own at the point of the sword.

The Chárdauris have no great reputation among the clans for skill or bravery; but they have still, on some occasions, done good service to government; and the Lord of Mohammedjik, old Naúrúz Khán, is one of the most shrewd and sensible tribe chiefs that I have ever met with. The Chárdauris of Sa'in Kal'eh are under nominal obligations to furnish a body of 700 horse to the crown, but I should doubt their being able to assemble half the number; and in the Herát campaign they were excused attendance altogether, in consequence of their own troubles, and their being attacked by plague during the preceding year.

5th.—At Mohammedjik I took leave of my Mikri friend, who seemed quite out of his element among the detested Kizilbáshes, and with a guide of Naúrúz Khán's proceeded on my journey. Following up the narrow valley of the Jaghatú, at 1 farsakh I passed through Sa'in Kal'eh, situated at the foot of an immense artificial mound, which is crowned by a modern fort apparently of some strength. Owing to the recent disturbances I found the place almost deserted, but the fort above bristled with arms, and the Afshárs, who had possession, did not seem quite easy at the approach of our party from Mohammedjik. From the appearance of the mound at Sa'in Kal'eh there can be no question of the antiquity of the site; it is difficult, however, to recognise the position in Oriental geography, and as the name is certainly a Turkish imposition, its accidental similarity to the Sanais of Ptolemy, or the Sintha of Peter the Patrician, must not be regarded.* At another farsakh from Sa'in Kal'eh I quitted the high road, which here strikes up among the hills to the left, and followed up the bank of the river for a short distance to visit the remains of an ancient bridge over the Jaghatú, named Kiz Kóprí.† This bridge was a most pleasing discovery, as it enabled me to fix the great line of route which approached Canzaca from the westward. I found four of the platforms of the piers from which the arches sprang still standing: they were 18 paces in length and 8 in breadth, pointed at the end opposed to the current, and rounded at the other, the exterior facing being formed throughout of huge blocks of hewn stone, excellently fitted, and the interior being filled with loose stones mixed up with a strong lime cement. There seemed to have been originally seven of these platforms, three of which had been carried away by the force and rapidity of the current. The era of the bridge I believe to be Sasanian, and it doubtless marks the line by which the road from Niniveh

* Ptol, lib. vi. c. 2. Peter Patric. in Excerpt. Legat., p. 30.

† "The Maiden's Bridge," equivalent to the Fáli Dokhter, so frequently met with in Persia. See the Memoir on Ecbatana, p. 136.

conducted to Canzaca. The remains of an ancient Sasanian fort were also said to exist upon a steep and lofty hill on the other side of the river, but I had no time to cross and visit them. Turning up a narrow valley to the left from the bed of the Jaghatú, I now entered among the arms of the broad straggling range which here runs nearly west and east, and appears to connect the Mikrí hills with the great chain thrown off to the S.E. from Sehend, and named by Monteith the mountains of Kibleh. After winding for 10 miles among the tortuous ravines, and ascending the steep acclivities of the successive shoulders of the range, I at length found myself at the highest point of the hills, where I got a bearing of Mohammedjik N.N.W., Şa'in Kāl'eh being nearly in the line. The hills in this part are steep and barren, and are used for sheep-walks: the high road from Şa'in Kāl'eh followed, I understood, a long easy pass a few miles to the eastward of the line, by which I reached the summit of the range; on descending very gradually upon a high table-land, I rejoined it, and from thence travelled 6 miles farther in a general S.E. direction to the village of Hişár.

This part of the country consists of a wide expanse of barren, hilly downs, which appear as if they might be traversed in any direction, and the traveller is therefore at first surprised to find the very great détour that he is obliged to make to reach any particular point; but this is soon explained: the downs are intersected by steep, precipitous ravines, which are not perceptible at a distance, and which, except at certain spots, are quite impassable: in the bed of each of these ravines is a little stream flowing down to the Sárúk, and the remains of numerous villages, now deserted, may be seen upon their banks.

To the E. the country is more hilly, the view being terminated by the great range which divides Azerbiján from Khamseh. At the time of Sir R. K. Porter's visit to the country, Hişár seems to have been a considerable place; of late, however, it has been altogether abandoned, and I now found the brother of the Afshár chief endeavouring to assemble a few families within the ruinous enclosure of the fort, who might serve to cultivate the adjacent lands.

At Hişár I was again among the Turks. The Afshár chief was absent on a pilgrimage, and the government was, temporarily, in the hands of his brother, a young man who had been from his childhood in the service of the government, and had thus tainted his I'liyát manners with the flippancy and affectation of the Tabriz court. I had no reason to complain of want of courtesy, but, I confess, the rough sterling kindness of the tribes has always pleased me far better than the jaunty bearing of the city fashionables.

8th.—Near *Hişár* the road from *Sa'in Kaleh* divides; one track leading to the right to *Şehnah*, the capital of *Ardelán*; the other to the left, to *Hamadán*. Our maps commit a strange error in placing *Sefer Kháneh*, on the latter of these roads, instead of the former. *Sefer Kháneh* is in reality the usual caravan stage from *Sa'in Kal'eh*, on the *Şehnah* road, and is situated about 6 miles to the W.S.W. of *Hişár*, instead of to the E., as the maps had led me to believe.

I had come to *Hişár* for the purpose of visiting the caves of *Karaftú* before I proceeded to *Takhti Soleimán*. I found them now to be only distant 4 farsakhs; but the road among the ravines was too difficult to admit of my going and returning in the day, and there was no nearer point on the direct line where I could make my stage; I was, therefore, recommended to-day to go to *Chúklí*, the last *Afsbár* village of any consequence towards the Kurdish frontier; and from thence, on the morrow, to visit *Karaftú*, and return to *Tikán Teppéh*. At about 1 farsakh from *Hişár* I rejoined the high *Hamadán* road, continued for another farsakh along it, and then struck down a ravine to the right, until I reached the villages of *Gók Aghách*, and *Chúklí*, in the last of which I took up my quarters, the distance from *Hişár* being $12\frac{1}{2}$ miles; it was difficult to observe, accurately, the direction of this march, from the windings of the road, the want of any prominent objects, and the narrow range of view among the undulating hills; however, as far as I could ascertain, the general direction was E. a little southerly. I found *Chúklí* to be chiefly inhabited by a party of *Kalhur* refugees from *Kermánsháh*, who had known me when employed at that place, and were now most desirous to do me honour in their new abodes. The village is of no great size, but it is pleasantly situated on a small stream which flows down to the *Sárúk*, and there is more cultivation around it than is usually seen in this desolate and steril tract.

7th.—Escorted by a party of *Kalhur* horsemen, I set out from *Chúklí* to visit the caves of *Karaftú*, one of the most curious places that exist in Persia. Travelling in a direction of S. 20 W. over a barren and open country, at 7 miles I reached the bed of the *Sárúk* river. This river is formed by the confluence of four streams which rise in the district of *Takhti Soleimán*. It flows then to the W. in a narrow, rocky valley, between high banks, broken at intervals by the huge ravines, which, as I have mentioned, intersect the country in all directions, and run down to the bed of the river. Near *Sefer Kháneh* it meets the *Jaghatú*, which rises in the pass of *Náúkhán*, on the eastern face of *Zagros*, and thence passing through the district of *Sekiz*, collects all the streams of that mountainous region; from the point of confluence the river continues among the mountains till it reaches *Kiz*

Kóprí, after which, the valley begins to expand; and, at last, opens out into the great plain of Miyándáb. At this season I found very little water in the Sárúk; it was merely a rapid, noisy stream, boiling along amid stones and rocks, and fordable at all points. The Sárúk does not form the boundary between Azerbáján and Kurdistán, as has usually been stated. The Afshárs of Sa'in Kal'eh claim a very considerable tract S. of the river; and though at present it is little occupied, no doubt remains as to their right. At 7 miles from the river, still pursuing the same direction, over undulating downs covered with high withered grass, I reached the great ravine of Karaftú, in the precipitous face of which are found the openings to the caves.

Sir R. R. Porter has described these excavations with so much minuteness and accuracy that I need not add much to his account. There can be little question about their having been devoted to Mithraic worship, and the neighbourhood of the great Median capital explains their position in this wild, and now desolate region. Porter speaks of an enchanted fountain in the innermost recesses of the mountain, to which he was unable to penetrate: I heard the same story from my guides, and, after numerous failures, succeeded at last in reaching the spot, at the end of a natural gallery formed of the most splendid stalactites. The magic fountain proved to be nothing more than a small natural pit among the stalactites, filled with delicious water; and, after clambering round the sides of it, I found the gallery too narrow to admit of any farther progress. There is some exaggeration in the infinite extent which Porter would assign to the ramifications of the cave. I followed every gallery which I found, or with which the guides were acquainted, to its end, and none of them reached further than the fountain, about 700 yards from the entrance. The altar, also, of which Porter speaks, in the square chamber of the second range, is the base of a broken pillar—had he cast his eyes upwards he would have seen the rude capital adhering to the roof of the cave. His description, however, in the main, is graphic and correct, and I cannot do better than refer to it for all particulars of this very interesting spot.

After remaining 6 hours at Karaftú, I remounted, on my return. We fell in with some wild hogs near the caves, and the chase which they gave us took us some miles farther down the valley of the Sárúk than the point where I had crossed it in the morning. All this part of the country is what the Persians call Chúl (an uninhabited desert), and forms a sort of neutral ground between Azerbáján and Kurdistán; the real boundary is said to be the great ravine of Karaftú. After the chase, we followed up the narrow rocky valley of the Sárúk for about 9 miles—the general direction being E. 8° N. As we proceeded, we found a

few miserable villages on the banks of the river, and saw some others in the ravines to the right and left. At last, we quitted the river at the large village of Kiz Kapán, an Afshár settlement, and crossed an open undulating country for 5 miles, in an E. by S. direction, to Tikán teppeh, the usual halting-place for caravans on the high road between Tabriz and Hamadán—it is reckoned 9 farsakhs distant from Şa'in Kal'eh, and from the caves of Karaftú it may be about 17 miles.

Tikán Teppeh is situated in a valley of limited extent, well watered, and pretty generally cultivated. The village is named from a large irregular mound, of no great height, but of considerable circuit, of which it covers the southern and western skirts; it is one of the chief places in the Afshár country. I have since learnt that in the immediate vicinity there are a number of ancient excavations, which appear as if intended for places of sepulture, and which, from their being thus found in the interesting neighbourhood of the Median capital, would be well worthy of minute examination.

8th.—From Tikán Teppeh I set out to visit the ruins of Takhti-Soleimán. There are two roads conducting to the Takht; one, a circuitous track, leads into the valley of the main branch of the Sárúk, and follows up that stream to its source; the other crosses the hills in a general direction of N. 40 E. I followed the latter track over a country broken by several low rocky ranges, and at the end of 12 miles, descended to the valley of the southernmost arm of the Sárúk. A considerable village, at this point, is named Kárániz; and a short distance lower down the stream there is a natural object which is considered one of the great wonders of the district: the river, it seems, swells out into a small lake, and in this there is a floating island of spungy turf, which is usually moored at one side, but can be pushed with long poles to all parts of the lake. I was so anxious to get to the Takht in time for a meridional observation, that, much to the astonishment of my guide, I declined going out of my road to visit the floating island. From the river I crossed over a barren, stony hill, where, in an old I'liyát cemetery, the body of an Imám Zádah* was said to have been, lately, miraculously discovered; and which was, thus, considered by the peasantry as holy ground, and, at 5 miles, on reaching the brow of the hill, had the satisfaction of seeing the ruins of the famous Takht, in the valley at my feet. The first view of the ruins of Takhti-Soleimán is certainly striking. The tract of country, extending along the base of the mountains, which form the prolongation of the Káfilán Kúh range, is more open than any I had seen since leaving the shores of the

* The descendant of an Imám.

lake of Urumiyah. It is called, in the country, the Şahrá, or plain of Takhti-Soleimán; but this must be only understood as a relative title, to distinguish it from the mountainous regions that surround it; for it is an undulating tract, intersected by many low ranges of hills, and does not at all answer what we expect from the term of Şahrá, or plain; near the south-eastern extremity of the tract there is a narrow open valley, commanded by a projecting hill, on the summit of which are the remarkable ruins of the Takht. From a distance they present to view a grey hoary mass of crumbling walls and buildings, encircling a small piece of water of the deepest azure, and bounded by a strong line of wall supported by numerous bastions. A nearer inspection shows the ruins, perhaps, to less advantage; but I confess, to me it was fraught with much interest, for at every step, I met with fresh evidence to confirm me in the belief that I now beheld the great capital of Media. I was occupied for the greater part of three days in examining the ruins, and taking a regular survey, which I have laid down in the accompanying plan. This plan, and the description already published in Sir R. K. Porter's travels, will preclude the necessity of any very detailed account; but still, I cannot pass over the place without a general notice.

The hill of Takhti-Soleimán appears, at first, as if it were isolated, but this is not strictly the case. On the southern, western, and northern faces, it presents a steep acclivity to the valley; but, at the N.E. and S.E. corners, the ground rises gradually, and on its eastern face it is thus very slightly elevated above the country beyond the walls. At the S.W. corner, I found the height of the hill, by trigonometrical observation, to be 150 feet above the plain, and that of the wall, at its summit, where perfect, to be 30, giving a total of 180 feet; and this may be taken as the general average of height along the three steep faces. The brow of the hill is crowned by a wall, the most perfect part of which is along the southern face, and the most ruinous upon the western; but this will be more apparent by a reference to the plan, where I have laid down the exact ground-plan of the wall, marking, by a dotted line, what I suppose to have been its original dimensions. There are the remains of thirty-seven bastions, and the circuit of the wall, measured from point to point of these bastions, is 1330 paces, or a little more than $\frac{3}{4}$ of a mile. At a few points only near the gateway, on the south-eastern face, is the line of wall perfect; but where it is perfect, the masonry is shown to be most excellent. The breadth of the wall is 12 feet, the outer facing being composed of hewn blocks of stone about 14 inches deep, and 2 feet in length, alternating with thin stones laid edgeways and perpendicularly between them, and the whole being fitted with extreme care and nicety: the interior is filled

up with huge unhewn blocks, imbedded in a lime cement, which is now fully as hard as the stones themselves. The bastions that are now perfect near the gateway at the S.E. corner of the fort are solid, and taper upwards from the base; but I do not think these can be of the same age as the curtain, for they are formed of smaller stones, less accurately fitted, and in other parts of the fort fragments of the old bastions remain, faced with the same huge blocks of hewn stone which mark the general character of the real ancient building: it appears to me as if the bastions near the gate had been repaired in times comparatively modern. The gateway which faces S. 30° E. is quite perfect. It consists of a single arch, 12 feet high, and 10 feet wide, and is formed entirely of massive hewn blocks—a bastion protects it on either side. Above the gateway, and extending from one bastion to the other, are a line of blocks, each carved with a rude representation of an arch, which thus form a sort of ornamental frieze to the portal, and offer the only specimen of ancient sculpture to be found upon the walls. Passing through the gateway, I found myself within the precincts of the deserted city: the first object that attracted my attention was the lake. I found this to be an expanse of water on the highest point of the hill, irregularly shaped, and about 300 paces in circuit: the rocky banks that surround it are formed of a deposit of carbonate of lime, of which the water holds vast quantities in solution, and there can be no doubt but that they are daily narrowing as the calcareous deposit continues: a very short distance from the surface they recede inwards, thus forming a huge incurvated basin for the lake. Sir R. K. Porter states his belief, that the hill has been formed entirely by deposition from the water, and this, in very remote antiquity, would seem to have been the case, for the depth of the water, recently determined by repeated experiments of the Afshár chief at 47 Persian yards, agrees, as near as possible, with the height of the hill, ascertained by myself with the sextant; but still, from the date of the erection of the present wall, the height can have increased but very little, for so gradual is the slope from the bank of the lake to the gateway, that the water which flows out of the lake by an artificial outlet, opened within the memory of the old men of the district, can scarcely find its way to the portal, the greater portion lying about in large pools, evaporating and adding by its deposit to the great petrified mass; and, besides this, the water has long since risen to the highest level which the nature of the fountain will admit. I conclude the lake to be connected by an underground syphon with some other great fountain in the interior of the adjacent mountains, which is precisely of the same level as itself, and which has other means of outlet; for the great phenomenon of the lake is this, that whatever

number of passages may be opened in its rocky edge for the purpose of irrigating the lands below, the hill will be immediately filled by a copious discharge of water, which may be kept up for any length of time, without at all affecting the level of the lake; and if these passages again are closed, so as to prevent the escape of any water, the surface of the lake will still preserve the same level, and the water will never rise enough to overflow the banks;* and this same phenomenon was remarked and described by an oriental writer upwards of 500 years ago.† In the traditions of the country, it is not believed that there was any outlet for the waters of the lake until about fifty years ago, when the Sháh Sewend tribe opened two passages to conduct streams for the irrigation of their lands at the foot of the hill, and, of course, when the town was inhabited, the people, who could not be ignorant of the petrifying quality of the water, would naturally be careful to prevent its escape. However, after the city was finally ruined, which I believe to have been during the fifteenth or sixteenth century, some great outlet, either by accident or design, must have been opened upon its western face; for on that side the whole tract, intervening between the lake and the brow of the hill, bears evident marks of having been deluged—the surface is one mass of petrification, and the curtain and bastions, which I conclude to have been already in ruins before the great flow commenced, are entirely covered with the calcareous deposit, lying in huge waves over the prostrate blocks along the crest, and down the slope of the hill, like the hardened surface of a flow of lava from a volcano: the appearance is most singular, and I can hardly think that the constant flow of water for a century would have been sufficient to produce it. At present, there are two outlets for the water; the most ancient is at the N.E. corner of the lake, where the water pours gently forth through a small aperture in the rocky bank, spreads itself out, and petrifies as it goes along, until it reaches a ruined part of the wall upon the eastern face of the fort. It here again collects into a narrow bed, flows round one of the bastions upon a high rocky ridge which it has formed for itself, and then turns off into the country to a little pond, from which it trickles into the plain below; the other outlet is at the point of the lake nearest the gateway. A small portion of the water only, as I have mentioned, reaches the gateway, and, at the time of my visit, this portion seemed to be entirely wasted away in a large mass of calcareous rock, a short distance below. Having seen the extraordinary petrification upon

* I do not, of course, speak from my own personal experience; but this is a well-known fact in Persia, and has been repeatedly verified by the princes and nobles of Khamseh and Gárús during their summer encampment at the Takht.

† Hámdu-lléh Móstaufi. See the Second Memoir, p. 66.

the western face, I could fancy that, should anything occur to ruin the gateway and adjoining bastions, they might, some centuries hence, present perhaps the same appearance.

When I was at Takhti-Soleimán, the water did not gush from the lake with any force whatever; the hand, held a very few inches within the aperture, was quite insensible to a current, and bits of stick, which I threw in at the distance of a yard, were not even drawn into the channel. The peasantry regard it as a special miracle, that in the spring season, when water is required for irrigation, a copious supply reaches the plain from these two outlets, without there being any perceptible increase in the volume that is discharged; and that, while in other places the water becomes stone, it produces only a fertilising effect upon their cultivated lands. I conclude from this that, in the spring, when the mother fountain is swollen by the melting snows, the velocity of the water in these narrow channels must be much increased, though its apparent body remains the same; and that, either the carbonate of lime, which it holds in solution, must be all deposited before it reaches the lower plain, or, as is more probable, that the infusion of the snow-water must purify the fountain, and remove a great proportion of the calcareous matter, which appears at other seasons to be the main cause of its tendency to stagnate in its downward course. Be the reason, however, what it may, there is certainly no appearance of deposit in the cultivation below, and the narrow outlets could not contain a greater body of water than I saw in them at the time of my visit. The water is of a deep blue colour, exquisitely clear, and not unpleasing to the taste. I brought away a bottle of it to be analysed, but, unfortunately, it was broken before an opportunity occurred of applying chemical tests.

The old opinion was that this lake was unfathomable; indeed an Arabian traveller of the ninth century does not scruple to affirm that he tried to sound it with a line of 4000 yards, and failed in finding any bottom. The assertion is perpetuated in all the geographers, and was believed in the country until last year, when an Afshár girl, having thrown herself into the lake, in consequence of disappointment in a love affair, the chief, a very intelligent man, was led to try its depth with a line. The water was so heavy that the people employed could not tell when they touched the bottom; but with a line of sixty Persian yards the stone came up covered with mud: they then continued shortening the line, with the same result, until at 46½ yards the stone came up clean, having evidently not touched the bottom. The experiment was repeated several times, and the depth of the lake may therefore be considered as ascertained at 47 Persian yards, or about 26 fathoms. The immediate banks of the lake are free from the remains of

any buildings, but at a short distance from it a square enclosure of ruins surrounds it on the four sides: the buildings are chiefly of a Mohammedan age, and doubtless belong to the palace erected at this spot by Abekai Khán, the Moghul emperor, as I shall explain more at length in my other memoir. A sketch of the principal ruin appears upon the ground-plan of the place, and I also give a copy of the Arabic inscription which runs along the frieze in the interior of the building. As these ruins are of no interest, and have, moreover, been noticed by Porter, I need not delay with a description. There is one particular mass, however, situated on the northern side of the square, which demands more attention. Porter considered this to be a ruined hammám, or bath, which scarcely deserved notice; but, after a minute examination, I see no reason to doubt its representing the ancient Fire Temple of the province of Azerbiján, which, before the rise of Islám, is known to have been one of the most holy places in Persia. The obscure history of the temple I shall endeavour to illustrate in the memoir, and here, therefore, confine myself to a description of the ruin.

Amid the mass of crumbling rubbish it was not very easy at first to ascertain the original design of the building; but after some trouble I succeeded: the temple has been a square edifice of 55 feet.

It was built of bricks, admirably baked, and laid in a plaster, which seems very much to resemble the Roman cement of the present day: so strong, indeed, is this cement that in some places where the arch is destroyed the superincumbent building still remains uninjured, supported merely by the adhesion of the bricks to each other: the outer wall is shown to be 15 feet thick: a high narrow vaulted passage within this surrounds the central chamber, and communicates with it by a large broad arch, upon each of the four faces: this chamber, where the sacred fire was, I conclude, deposited, is supported by massive walls also 15 feet thick: it is roofed by a circular dome, and measures inside 10 paces square: the central chamber is now filled up with ruin and rubbish to the spring of the arch; and the dome is also partly broken in from the character of the building, formed of layers of bricks, both horizontal and perpendicular, which is peculiar to the Sasanian ages, and the similarity of design to that of other ruined fire temples, which are to be met with in different parts of Persia. I refer the edifice without any doubt to the same class, though it is possible that, under the Muselmán rule, it was devoted to other purposes: the interior of the dome in the central chamber is coated with a thick covering of black, which seems to have been caused by the smoke of the sacred fire, burning for centuries upon the altar underneath. The central chamber is in

pretty good preservation, but the outer passage is for the greater part destroyed, and all round the edifice outside there are vast heaps of ruins, the debris of buildings attached to the shrine: above there appears to have been a superstructure, to which, in fact, the massive brick walls below served as a sort of pediment; and that this must have been of great height and solidity is shown by the foundations of immense hewn blocks of stone that are still seen among the ruins on the top of the domed chamber; here, I conjecture, were the emblems of the heavenly bodies that outraged the pious feelings of the Christian soldiers of Heraclius; and a silver crescent, on the highest peak of the cupola, seems to have maintained its position even long after the establishment of Islám.*

The only other building within the fortress, that appears to have any claim to antiquity, is a small square enclosure of four walls, rudely built of unhewn stone, near the south-western face of the fortifications: part of the left hand column of the gateway is still standing, formed of huge blocks of a dark-red stone, which are cut into the shape of the outer half of an octagon, and are also carved with an ornamental pattern: two fragments of a shaft are standing erect in front of the gateway; two others are lying on the ground near it; and within the walls there are also two bases or capitals; for it is not easy to distinguish which; all formed of the same dark-red stone, that is not to be met with in any other part of the ruins. I looked with interest down the slope of the hill for the remains of other walls, besides the one that runs along the crest, but I searched in vain: there are certainly not at present any traces of a wall, except the upper one; nor do I think that there ever could have been any upon the slope of the hill. On the northern and western faces of the hill, upon a sort of long sloping platform, between the steep acclivity and the lower valley, there are traces of some very extensive remains, but so nearly are they levelled with the surface of the ground, that I failed to ascertain anything of their precise nature: they stretch away from the hill 200 or 300 yards into the plain, and appear to have consisted of large quadrangular courts with a few buildings attached; these were probably the dwelling-places of the nobles, for whom there was no room within the narrow circuit of the walls; but the great mass of the city must have lain along the banks of the little stream that flows down the lower valley; and here, I confess, the remains are scarcely sufficient to accord with my idea of this being the site of the ancient capital of Media: immediately upon the banks of the stream there is certainly a long line of broken ground, which has been evidently covered with buildings, and upon the side of a hill to

* All these points are copiously illustrated in the second memoir.

the right there are also some considerable remains, which are named by the peasantry *Kelisiyeh*,* or the church; but still there is nothing to indicate the site of one of the most celebrated cities of the East; and it is only after seeing the broad level surface of the desert, unbroken by the trace of habitation, which we know must have been included within the circuit of other ancient capitals, not less populous or less celebrated than either of the Median Ecbatanas, that one can believe the mighty city of De-joces to have existed at this spot.

The common popular tradition regarding the ruins of *Takhti-Soleimán* ascribes the foundation of the palace to Solomon, the son of *Dayid*. He is believed to have here held his regal court, and to have invited the queen of Sheba, whom the easterns name *Balkís*, to visit him at the *Takht*, from her palace in the city of *Ushneí*. A remarkable ruin is shown upon the highest peak of the mountains, bearing N.E. from *Takhti-Soleimán*, which is named *Takhti-Balkís*, and is supposed to have been built by Solomon for the summer residence of the queen. The mountain was now covered with snow, and the road to the summit was described as so difficult that I contented myself with examining the ruin with a telescope from the plain below. It seemed to be a large artificial platform, surmounted with a few ruined walls; and, as I learnt that the building was all rough unhewn stone, I judged it to be a Sasanian fortress. It is said to possess a magnificent view of all the surrounding country, and that, in a clear day, the lake of *Urumiyah* even may be seen from it.

Among the other marvels which are attributed, at this place, to the wizard king, is a winding rocky ridge in the plain below the hill, upon its southern face, called the *Azhdihá*, or *Dragon*, which is supposed to have been a monster transformed into stone by the potent spell of Solomon's signet ring, as it was coming, open mouthed, to attack the city. The ridge is about 10 feet high and 80 paces in length, and has evidently been formed by the calcareous deposit of the water running for a great length of time in a narrow stream along it.

The hill immediately opposite to the *Takht*, towards the west, is crowned by a little ridge of scarp'd rock, in which there are said to be a vast number of natural excavations, which are also called *Tawilehi-Soleimán*, or the stable of Solomon; and above the ridge, I understand, there was an old wall encircling the summit of the hill, as though it had been used for a place of defence. But perhaps the most singular of all the natural curiosities in the vicinity is the place named *Zindáni-Soleimán*, or Solomon's prison. This is a small conical hill at the distance of $1\frac{1}{2}$ mile from the *Takht*, in a direction of N. 70 W. It rises up very steeply from the plain, and the summit is crowned by a

* Corrupted from the Greek *Ἐκκλησία*.

scarped rocky crest, which is rather difficult to ascend. On scaling this crest, I found myself on the brink of a most terrific basin, into which it made me, at first, almost giddy to look. The explanation of this singular place was at once apparent. A petrifying spring, similar to that of the Takht, must at one time have here burst from the ground. It must have given birth to the entire hill, rising from the pressure of the great interior fountain, as it gradually formed by its deposit a rocky basin to contain the waters; and at last, when the basin had risen to its present enormous height above the plain, some great natural convulsion must have suddenly cut off the supply of water, causing the level of the great fountain to fall at the same time to the height at which the lake of the Takht appears now to remain in equilibrium. I can only suppose that this great convulsion opened an outlet for the water at the Takht before the formation of that hill or basin; for otherwise it seems impossible to understand how the waters at the Zindán could have risen so much higher than the level at which they remain stationary at the Takht. The summit of the Zindán is certainly 200 feet, probably more, above the level of the lake upon the Takht; the shape of the basin is nearly circular, and it measures about 40 yards in diameter. I had no means of ascertaining its exact depth, but a small pebble, dropped from the brink of the basin, took $4\frac{8}{10}$ " to reach the bottom, which will give a rough measure of 370 feet; and by suspending a line of 20 yards from the side, I judged it to be above six times that depth, which gives nearly the same result. The basin is slightly incurvated towards the summit; it then descends perpendicularly till near the bottom, and there branches out into deep cavernous recesses upon every side. When the communication with the great fountain was cut off, an immense deposit of calcareous matter must of course have taken place as the water evaporated, so that the original depth was probably much greater than it is at present. The bottom now looks like moist sand, with fragments of rock projecting through it.

The tradition regarding this place pretends that it was formed by Solomon for a state prison, and certainly a more secure dungeon could hardly be found. All the well-informed people of the district, however, perfectly understood its formation; and the lake at the Takht, they say, some day may possibly present the same appearance. There are a number of springs near the foot of the hill thermal, acidulous, sulphuric, and calcareous; one of the most curious is a small basin with a jet of water in the centre always playing, and the spring still remaining at the same level without any apparent outlet for the water. This the Afshárs of course regard as a miracle; and I confess, at first sight, it appeared startling enough: however, I could not doubt but that there was some fissure invisible from above (though the

spring was exquisitely clear) which carried off the water under ground. During my residence in this neighbourhood I took up my quarters with the brother of the Afshár chief, a fine, rough, honest farmer, who detested all government connexions from his very soul, and who lived quietly in his village of Chorek Teppéh, about 5 miles distant from the Takht, cultivating his lands, protecting the peasantry, and enjoying all the pleasures of a real country life. Chorek Teppéh bears from the Takht about N. 50 W.; the intervening country is pretty open, formed of high undulating downs, with here and there the rocky crest of a hill; but beyond Chorek Teppéh, in the same direction, there is a considerable plain, which is intersected by the three most northerly arms of the Sárúk. One of these arms comes down a long defile from the mountains named Zarrah Shúrán, or the gold-washers, and along the course of this stream there is said to be the old shaft of a mine, which has been worked above a farsakh in length. There are numerous other shafts and galleries of old mines in various parts of the district, but none of them are now worked. They are believed to have produced lead, copper, iron, and even silver and gold, whence has remained the name of Zerreh Shúrán.

At Chorek Teppéh I heard wonderful accounts of an inscription in an unknown character, which was to be found upon a neighbouring hill, and the clue to which was kept with the greatest secrecy, as it was supposed to contain a talisman for discovering the entrance to some inexhaustible mine in the vicinity. I had been told of this inscription, indeed, ever since I entered the Afshár country, and my curiosity was not, I confess, a little excited when I found that some Feringí traveller, who, from the description, I at once recognised to be Schultz, had been actually detained here for three days searching for the tablet; and after every endeavour to obtain a sight of it by bribes and persuasion, had at last left the place without being able to effect his purpose. The same mystery was kept up in my own case when I first arrived at Chorek Teppéh. The Khán was absent, and not a single question could I get answered regarding the inscription. On my repeating my inquiries, however, after his return home, an old white-beard, the hereditary pír of the district,* was produced, who was alone in possession of the clue to the place. The old man at first gave a direct refusal to show the inscription to an infidel; but finding the Khán was not to be trifled with, he then endeavoured to make a bargain with me, asking some enormous sum as his fee for guiding me to the spot. I had been careful

* Among the I'liyát of Persia these holy men are often met with. They usually trace their descent from some ancient devotee or saint, whose sacred character is supposed still to shed its influence over the *O'jáq*, or family hearth-stone. The 'Alí I'láhi sectaries actually worship them, and, even among the orthodox Shiáhs, an *O'jáq* is regarded with extreme veneration.

not to appear too anxious about this inscription, as I was aware that I should thereby be defeating my own object (indeed, it could only have been, I think, Schultz's extreme eagerness that prevented the old man from showing it to him); so I replied that I should be hunting with the Khán on the morrow in the neighbourhood; that I should take an opportunity of looking at the writing, and that if it proved to be of interest, which I had no reason to expect, he should be rewarded with a present. On the morrow, accordingly, in my way from Chorek Teppeh to the Zindán, I turned aside to the hill where the old man said the inscription was to be found. The side of the hill was covered with rocky fragments, and several fissures in the ground were shown, which were said to be the openings to mines, now disused and difficult to enter, from the galleries having become wholly or partially choked up with the falling in of the soil from above. Among these fragments the old man had to search for nearly half an hour before he himself could discover the tablet; and when I was at last summoned to behold and explain the talisman, I found it to be mere common Arabic writing, very rudely cut, and so nearly obliterated as to have appeared to the ignorant Afshárs like an unknown character. When I pointed out several particular words to the Khán, however, he could not fail to recognise them, and then he wondered at his stupidity in not making the discovery before. There are twelve lines, which appeared to me to be Arabic verse, but I could not make out enough of the writing to determine its application with any certainty. I conclude it, however, to have some reference to the mine which was worked close by. The old man, as may be supposed, was not a little disgusted with my discovery, and when the Khán began to taunt him with his wonderful talisman, he declared that his holy character was now gone, and that he must leave the country. I mention this story as a lesson to travellers in Persia, to be very cautious in trusting to the hearsay evidence of their guides; it is impossible to feel any certainty, with regard to inscriptions or other remains of antiquity, without personal examination.

In the spring and summer the neighbourhood of Takhti-Soleimán is represented as a perfect paradise. The country all around is carpeted with the richest verdure; the climate is delightful, and myriads of wild flowers impregnate the air with fragrance; indeed there is not considered a more agreeable yáílák or summer pasture in all Persia. The governor of Khamseh frequently makes it his summer residence, though, strictly speaking, it is beyond the frontier of his province; and a great part of the I'liyát of Khamseh and Gárús also graze their flocks during the hot weather in the vicinity of the Takht; of these I'liyát the principal are the Sháh Sewend,* a very large tribe, to be met

* These are the Shasseranni, that "dreadful and ferocious tribe" described by

with in all parts of Persia, but chiefly in 'Irāk, and at Ardebil: the portion of the tribe attached to Khamseh numbers about three thousand families, who migrate between Takhti-Soleimán and the warm valley of the Kizil Uzen.

10th.—Having finished my survey of the Takht, I set out from that place to find my way to Zenján, along a line which I believe has never before been travelled by a European. Ascending gently along a winding valley in the hills, in a direction of about N. 64 E., at the end of 5 miles, I reached the top of a pass in the first range of hills; Takhti-Belkís bearing due N., at the distance of about 2 miles: here the district of Angúrán commenced, the pass in the hills being considered the true frontier between Azerbiján and Khamseh. This district of Angúrán is one mass of mountains; it occupies all the eastern face of the range which stretches up to the northward, as far as the Káfilán Kúh hill, and is broken by innumerable ravines, generally running in an E. by S. direction, each of which conveys its little stream to swell the waters of the Kizil Uzen: in the beds of these ravines are situated the villages of the peasantry, smiling amid gardens and orchards, and appearing all the more thriving and happy from their contrast to the miserable and half-ruined hamlets of Şa'in Kal'eh. Descending from the top of the pass to the opening of one of these ravines, I had again to cross a very high rocky ridge, the inner barrier of the chain, distant 1 farsakh from the upper pass, before I could fairly get into the bed of the little valley.

From hence I followed down a stream for 4 miles, in an E. by S. direction, the solitary peak of Mount Demirli bearing right a-head,* in the far distance, during the greater part of the time. I passed several villages, and finally alighted at Yenijah, a fine thriving place, containing about two hundred houses, and filling the bed of the valley to some distance with the gardens and orchards that surround it. I had brought a guide with me from my Afshár host of Chorek Teppeh, and, sending him on half an hour in advance, I found on my arrival everything arranged for my reception by the old Ketkhodá of the place, who, though quite of a different stamp from the tribe chiefs I had been lately associated with, was still one of the kindest and most good-humoured fellows that I met with during my whole trip.

The district of A'ngúrán contains about fifty-five villages, and pays an annual assessment of three thousand tó máns to government, besides furnishing nearly two hundred men for the army. This revenue is mainly realised from the produce of lead, large

Porter in his visit to Takhti-Soleimán; their ferocity is, however, I fancy, confined to sheep-stealing and similar V'liyát practices.

* Mount Demirli is strangely misplaced in Col. Monteith's map. It is about 40 miles out of its true position.

quantities of which are indeed now received by the government in lieu of money. The mountains of A'ngúrán and U'riyárd, an adjacent district to the N., are celebrated for the richness of their metallic stones. In U'riyárd the mines are still worked, and, under proper management, would yield a most abundant return; but in A'ngúrán, though the openings to the mines are all well known, it is not found of advantage to work them; for there are vast quantities of ore remaining at all the old furnaces throughout the district, from which the lead has been but half extracted; and the resmelting of this ore affords full occupation at present for all the peasantry that can be spared to attend to it. When this supply is exhausted, I suppose the mines will be again worked. The produce of grain very limited, and does not suffice for the wants of the population.

The A'ngúránís, in common with all the inhabitants of Khamseh, are Turks, and consider themselves, I know not with what justice, to be part of the great tribe of Afshárs. The government is hereditary, in the family of a particular chief; subject, however, to the approval of the provincial governor appointed from Teherán. This chief, by name Ganj' Ali Khán, resides at the village of Ganj-ábád, distant about 6 miles N.E. of Yenijah, and it is thus considered at present as the capital of the district.

A'ngúrán seems to be the place which, in oriental geography, is known by the name of Anjerúd, or Anjereh, and which was included under the Chengizian dynasty, among the dependencies of Sojás and Sohriverd.* In common with the surrounding districts it suffered greatly in the harassing conflict of plunder and devastation, which was kept up all along this frontier between the Kurds and Kizilbáshes, preceding the rise of the Şefavéan dynasty. Towards the close of the sixteenth century, when the Turks had overrun Azerbáján, Khamseh and the dependent districts, as far as Hamadán, were confided to the care of a chief named Daulet Yár Khán, of the Kurdish tribe of Siyáh Mansúr; and as the safety of 'Irák depended upon the defence of this frontier government, the power of the chief was strengthened with all the disposable means of the empire. Daulet Yár Khán, elated with this power, and relying on the natural strength of his country, now took occasion to assert his independence; he built a very strong fort in these mountains of A'ngúrán, defeated the first army that was sent against him, and it was not until Sháh 'Abbás the Great undertook in person the siege of his strong hold, that this dangerous rebellion was finally crushed.† The remains of Daulet Yár's castle are still shown upon a high peak N. of Yenijah.

11th.—From Yenijah I still continued to follow down the ravine in a general E. by S. direction, till it gradually expanded

* Noz-heto-l Koláb.

† Sheref Náneh, or Táríkhi-Akrád.

into an open valley, and, at the distance of 8 miles, finally debouched upon a small plain, in which were situated the two large villages of A'ngúrán and Kháiník, both surrounded with gardens, and lying at the foot of high artificial mounds, crowned with defences. This plain seems to collect the greater part of the streams, which flow from the eastern face of the hills, and to pour them in one channel into the Kızıl Uzen. Crossing the plain, which is the eastern frontier of A'ngúrán, I began to ascend a steep winding pass, and at the end of 2 miles reached the summit of a hill, from which I had an admirable view of the whole of A'ngúrán, and was able to fix the position of all the most remarkable villages. I had now entered the district of Kızıl Géchiler, and for 5 miles further continued due E., over a high table-land, broken into gentle undulating ridges, till I reached the high precipitous banks of the Kızıl Uzen, and saw the river winding in a narrow valley at my feet. The course of the Kızıl Uzen is laid down most incorrectly in our maps. I had been led to expect that I should meet with it upon the line I was following immediately after crossing the range E. of Takhti-Soleimán, whereas I now found that it made a great circuit in this part of its course, and was in reality above 30 miles distant from the Takht. From the spot which I had now reached I could see a terrific chasm in the mountains to the N.W., through which the river forced its way in its onward progress to the Káfilán Kúh. Its left bank was girt as far as that point with very high precipitous rocks, while to the right the country sloped up to a range of hills bounding the view to the N., and was seamed throughout with the beds of immense torrents, now dry, and showing only a broad surface of bright shining pebbles. The descent into the river was abrupt and difficult. The road, for about a mile, wound among the most frightful chasms; and the rocky pathway was so narrow and slippery that our whole party was obliged to dismount and cautiously drag the horses after them. The perpendicular height of the left bank of the river at this point cannot be less than 1500 feet. The passage of the river also was not without danger, owing to the rapidity of the current and the great masses of rock that are brought down in the bed of the stream: the ford is constantly changing; and our guide was thus obliged to try several points before he succeeded in finding a passage practicable to the loaded mules. At this season too the water was nearly at its lowest ebb: in the spring there is no possibility of passing the river anywhere in this neighbourhood, except upon rafts. From the bed of the river a ride of $2\frac{1}{2}$ miles brought me to Karágul, a considerable village, situated on the rise of the plain as it begins to stretch up to the hills. There are several other large villages in the vicinity, but I chose Karágul for my stage, as the residence of Bába Khan,

the hereditary chief of the district. He was an aristocratic-looking man, but soured with disappointment at having lately lost the government to a more wealthy competitor: my short sojourn with him was hardly as comfortable as I should have found it in a more humble dwelling.

12th.—To-day I mounted some hours before daylight to make a long stage into the town of Zenján: for 4 miles I kept on, nearly N., ascending gradually over a track broken into low undulating hills, to the foot of the range which bounded the valley of the Kizil Uzen. I then entered the bed of a narrow, winding torrent, which I followed for 3 miles, till I had fairly reached the top of the hills, and opened out upon the high table-land at the summit. Over this I continued for 16 miles farther, ascending and descending the successive low broad ridges with which the entire face of the country was intersected. Cultivation appeared pretty general; but as a violent storm of sleet and snow raged during the whole morning, I could see but very few of the villages which I was told were scattered about; nor, indeed, could I ascertain the exact direction of my route; it appeared, however, to be about N.E. by E. At last I reached the outer limit of this very elevated tract of table-land; and down a gentle sloping valley in the hills I saw the plain country of Zenján, stretching away to the foot of the other great range, N. of that place, which is familiar to every one who has travelled the high road between Teherán and Tabriz. From the top of the pass, Zenján bore due E.: descending into the valley, I was soon out of the range of snow; and 10 miles further across the barren tract, which slopes down gradually from the hills to the bed of the Zenján river, brought me to that place, pretty well fatigued with my uncomfortable ride of 33 miles from Kárágul.

Zenján is too well known to require any notice. After halting three days to refresh my cattle and hire mules, I set out to travel by the route of Tárom, to Gilán.

15th.—From Zenján I struck across the barren stony plain, for 1 farsakh, to the foot of the hills, in a direction of N. 37° E. Ascending this outer range, by a very easy pass, I then followed along the top of it for another farsakh, in an E. by N. direction, to the opening of a steep rocky defile, which conducted, at two miles farther, to the large village of Te'ám, situated in a small secluded plain between the two ranges. Te'ám is inhabited chiefly by muleteers, and appears a thriving place: from hence I followed up the valley, in a N.E. by N. direction, to the foot of the great range, which I ascended by a very steep pass; and at 4 miles distance from Te'ám, reached the summit of the hill. This is a very elevated point indeed, probably 7000 or 8000 feet above the level of the sea; the air was bitterly cold, and even, at this early season, the snow lay several feet in depth. The Gilán

mountains, which were visible beyond the valley of Sefid rúd, appeared of a much less elevation than the point where I now stood. From here commenced the great descent, from the high table-land of Media, into the lower country, bordering on the Caspian; for though the district of Tárom, through which the Sefid rúd flows, to the point of its confluence with the Sháh rúd, is separated by a lofty chain of mountains from the forests of Gílán, yet there is no great difference of elevation between them.* The pass is named, indifferently, Ak Gedúk (the white pass), and the defile of Lewán Chái, from the title of the little stream which flows down through it into the Sefid rúd: it is very long and devious, winding about for nearly 12 miles from the summit of the hill, till it emerges into the vale of Tárom: the general direction is N. 60° E. In the early part the road dips down abruptly from the top of the ridge to a little dell, where a small ruined caravanserai still affords shelter to travellers, who may be benighted or weather-bound, in their attempt to cross the pass: it then follows the course of the stream, sometimes winding along the steep hill side, but, more generally, in the rough rocky bed of the torrent, which it crosses and recrosses 100 times, till at length it reaches a huge craggy ridge, formed by a vertical projection of the strata, which serves as a sort of outer rampart to the chain; and through which the stream forces its way by a tremendous chasm rent almost perpendicularly in the naked rock: this is the key to the pass; and a few resolute men might defend it successfully against thousands. The road has been built up round the bluff edge of the precipice, and is so narrow, that two horsemen can barely pass each other. Beyond the gorge, again, there is a very steep winding descent down the face of the hill, to regain the bed of the torrent; and the pass then gradually opens upon the valley of the Sefid rúd. There are two other passes in this range, conducting from Tárom to the high table-land of Sultaniyah and Zenjân, named Khámchái and Terechái; but the Ak Gedúk is considered by far the easiest, and is the one generally followed: in its present state of repair there is no obstruction whatever to laden mules in the lower part of the pass; but, during the winter, there must always be difficulty in crossing the snowy ridge at the summit; indeed, it frequently happens that this is blocked up for weeks together in a severe season.

Just beyond the pass where the road opens out upon the vale of Tárom, there is a village named A'yí, very pleasantly situated, and possessing a garden house, which was built by 'Abda-llah Mírzá, the late governor of the province: this is the usual halting-place for caravans from Zenjân. From the rising ground behind A'yí, the pass of Rúdbár, through which the Sefid rúd

* Colonel Monteith estimates the height of Menjil above the Caspian at 1000 feet; but I should think 500 feet would be nearer the true measurement.

flows into Gilán, was visible, bearing S. 72° E. The road now turned off, nearly due E., along the northern skirts of the range which I had just crossed; and at 5 miles, passing the villages of Kálát and Kishlák, descended to the bed of the Sefid rúd.

Tárom is divided into two districts: the upper division, which occupies a narrow tract on the right bank of the Sefid rúd, between the river and the mountains, is named Tárómi-Khelkhál; the lower, a more open country, where the hills recede farther from the river, is called Tárómi-páyín. The district, on the left bank of the river, stretching up to the other range of mountains, is named Pushti-kúh; and, though now usually included in Tárom, is not considered properly to belong to it. Tárómi-Khelkhál contains about 100 villages, situated among the ravines and narrow valleys which run down from the mountains to the river. It is abundantly watered, and, possessing a very warm climate, is well adapted to the cultivation of cotton, which it produces in large quantities. There are a great number of gardens and orchards also round all the villages, and the fruit which is thus grown forms one of the staple articles of export. In the mountains, too, there are mines of salt and alum, that are considered of some value. The chief place in Tárómi-Khelkhál is Weniserd, a large village, distant about 1 mile from the river, considerably below the point where I crossed; and Teshwish, upon the skirts of the hills, near Weniserd, where 'Abda-llah Mirzá built another palace, is also a place of some consequence. A very small proportion of the villages remain in the hands of government; by far the greatest part have either been conferred in Tíyúl, upon the proprietors, or have been given, in lieu of pay, to the officers of the court: the inhabitants are all Turks.

Reaching the banks of the river I crossed, by what appeared to me a good and easy ford, into the district of Pushti-kúh: so rapidly, however, I may mention, does the bed of the river change, that when I returned, twenty days afterwards, by the same route from Gilán, I found this ford quite impracticable from the number of rocky fragments that had been rolled down by the force of the current; and I was obliged to cross at another point, by a very deep and difficult passage. From the ford I continued along an open level tract upon the left bank of the river, for 5 miles, and then, turning up a narrow glade in the hills to the left, I reached, at another mile, the little village of Kaukend, where I took up my quarters for the night; having made a long and tiring stage from Zenján, of nearly 40 miles.

Pushti-kúh contains only 25 villages: it is not nearly so well watered as the other side of the river; the streams from the Gilán mountains being few and scanty, and all the intervening ridges being formed of naked steril hills. The principal places are Derrám and Ober: Derrám is upon the road which conducts

from Ayí across the mountains direct into Gílán; it is surrounded with gardens, and contains a third palace built by 'Abda-llah Mírzá. Ober is distant only two miles from Kaukend higher up among the hills; and, as the residence of the hereditary chief, claims to be the present capital of Pushti-kúh.

Zeítúnábád and Gílawán are also considerable villages. The inhabitants of Pushti-kúh are, for the most part, Kurds, of the 'Anberlú division of the great Lúlú tribe. They were settled here by Nádir Sháh, and have now, pretty generally, adopted the language and manners of the Turkish tribes by whom they are surrounded. A great part of them, in common with the Táromís, still adhere to a nomadic life, pitching their tents in winter along the warm valley of the Sefid rúd; and ascending the mountains in summer, where, in the fine pastures of that elevated region, they mingle with the 'Iliyát of Massúlá and Gílán. The revenues of Pushti-kúh have lately been assigned, in Tíyúl, to some Turkish dependent of the court, much to the disgust of the hereditary chief, who thus finds his authority over his own ra'yyats altogether annihilated.

16th.—I retraced my steps from Kaukend, down the little glade to the valley of the river, and then kept along the left bank for 14 miles to Gílawán, passing Zeítún-ábád at half way, in a little valley to the left. The road sometimes descends into the bed of the Sefid rúd, among the dense underwood that fringes its banks; in other parts it follows along the narrow plain between the hills and the river; and sometimes, again, to avoid a bend of the stream, it winds among the extreme prongs of the mountains to the left. Its general line, however, is nearly parallel to that of the river. In Tárom, upon the other side of the Sefid-rúd, there are a great number of villages among the glades which indent the base of the mountains; and the district appears singularly rich and cheerful.

About 3 miles below Gílawán, a ridge of low hills runs across the valley from one range of mountains to the other. The Sefid rúd forces its way, by a narrow gorge, through the ridge, and at this point, on an isolated and most precipitous hill upon the right bank, immediately overhanging the river, are the remains of a large and very strong fort, which, from a distance, have a most imposing appearance. The place is called Derbend, and forms the boundary between Táromi-Khelkhál and Táromi-Páyín; the fort is known by the name of Kál'ehi-Kohnéh; and, strangely enough, is ascribed by the peasantry, to the Khaliph Omar: it seems of some antiquity, and would be well worth examining. The country about Derbend is so very precipitous and difficult upon the Tárom side of the river, that travellers from Táromi-Páyín to Zénján are obliged to cross into Pushti-kúh, below the

old fort, and then follow up the left bank to the ford, where I had passed over below Kishlák.

From this ridge I kept on for 10 miles farther along the skirts of the mountains, till, at length, I reached the opening of the great Rúdbár pass, where the Sefid rúd, swoln by the waters of the Sháh rúd, forces its way through the mountains into the low country of Gilán.

In remote antiquity, the mountains to the N. and S. of the vale of the Sefid rúd, were inhabited by the powerful tribe of the Cadusii. Their proper seat appears to have been Khelkhál and the two Tároms: and, even as late as the eleventh century of Christ, the mountains retained the name of Kádústán.* Modern geographers have wished to identify the Thamneria of Xenophon with the title of Táromein;† but I doubt if the name of Tárom is to be found in any Oriental writer before the twelfth century,‡ and the termination, eín, is merely the Arabic dual. Hamdu-llah Mostaufi describes the district minutely, naming the five divisions and all the most considerable villages. The two capitals which he mentions, of upper and lower Tárom, called Shehristán, and Fírúz-abád, are, I believe, now unknown, but the titles of several of the other villages, as Derrám, Kálát, Kelij, &c., remain unchanged to the present day.§

The Sefid rúd is supposed to represent the Amardus of the ancient geographers, and, apparently with justice. As early, however, as the fourth century of Christ, it was certainly distinguished in the country by the same title which at present pertains to it; for we cannot doubt that the name Asprudus, which is applied in Peter Patricius to the river of Media, where the Roman ambassador, Sicorius Probus was admitted to a conference with Narses, the Persian king,|| is identical with Asped-rúd—the way in which the name would be written in ancient Persian. The title of Kizil Uzen, which is applied to this river in its early course, and which Rennell, from some fancied similarity of sound supposed to be the same as the Gozan, of Scripture, is a Turkish imposition of modern times. Hamdu-llah states, that the Moghuls, in his day, called the river, Yúlán-múlán,¶ and the present title, therefore, must be of a very recent date.

At the bridge of Menjil, near the opening of the pass, I joined the high road from Kazvín, and thence followed the same line to Resht, which is laid down in the itinerary of Major Todd, published in the eighth volume of the Geographical Journal.

* They are mentioned under this name in the Ashkálu-l-'Alam of Jéihání.

† See Exam. Crit. des Hist. d'Alex. p. 817.

‡ Yákút is the earliest author in whom I have met with the name.

§ See Noz-hetu-l-Kolúb.

|| See Pet. Patric. in Excerpt. Legat. p. 30.

¶ Noz-hetu-l-Kolúb.

II.—*Memoir on the Site of the Atropatenian Ecbatana.* By
H. C. RAWLINSON, Bombay Army, Major serving in Persia.
Communicated by Viscount PALMERSTON.

IN my attempt to identify the position, and to illustrate the history of the ancient capital of Media Atropatene, I propose, in the first place, to establish the verification of the ruins of Takhti-Soleimán in Oriental geography; to proceed from that point to the connexion of the early Arabs with the Byzantines; to trace up afterwards the fortunes of the city through the flourishing ages of the Roman and Greek empires: and thus finally to arrive at the dark period of the Median dynasty, where fable is intermixed with history, and glimmerings of truth can only be elicited by careful and minute analysis. And this line of argument, if less agreeable in character, is at any rate more consonant with the true principles of critical inquiry than the course which is usually adopted, of following down the stream of time from antiquity to modern days; for in the one case we commence our reasonings in doubt and darkness; we can determine no precise point of history to support our further disquisitions; and thus, when we at last descend to the more tangible field of certain and direct elaboration, our inferences are still affected by the obscurity of our early researches; whilst in the other we set out from a fixed base of direct and well-established proof. We build a superstructure upon this foundation; and as we gradually ascend the chain of evidence into the field of more remote inquiry, criticism may, at any point, withhold assent to our opinions, without at all endangering the stability of any part of the preceding argument.

To commence, then, with the verification of these ruins in Oriental geography. It is not, perhaps, possible to determine, nor is it, indeed, of any great consequence to the inquiry, at what precise time the city ceased to be inhabited. From the appearance of the ruins its final desolation can scarcely be assigned to a more recent date than that of Tímúr;* and that it was a flourishing place not very long before that era is evident from the following extract from Hamdu-llah Mustaufi, who wrote during the troubles which succeeded the death of Abú Sa'id Bahádur, in A.D. 1389.†

* The Kurdish history ascribes the ruin of all this part of Persia to the wars between the Kúrds and Kizil Bashí (red heads, applied by the Kúrds to all foreigners, Turkish as well as Persian), in the ages preceding the rise of the Sefavian dynasty.

† See Ouseley's *Travels*, vol. ii. p. 378. He flourished in the two preceding reigns of Sháh Khodábendeh and Abú Sa'id Bahádur.

"In the district of Anjerúd there is a town which is named by the Moghols Setúrík. It is on the summit of a mound, and was built by Kaï Khosrau, the Kayanian. The town contains a large palace: in the *ṣaḥan*, or court of which, there is a fountain in the shape of a large reservoir, or rather, perhaps, resembling a lake, and so deep that divers cannot reach the bottom of it. Two streams of water, each sufficient to turn a mill, are constantly flowing out of it. When the outlets are closed, the water of the lake does not rise; and when they are opened, the streams flow out as before; neither at any season does the water of the lake increase or diminish, which may be considered an extreme wonder. Abakāi Khān, the Moghol king,* put the palace of this place into repair. In the neighbourhood there are most excellent pastures; and the government assessment of the district is 25,000 *dínárs*."†

That the *Haft Iqlím* and the *Zinetu-l Mejális*, works of the seventeenth century, repeat the account of *Hamdu-llah*, I consider as no proof of the city's having remained inhabited to their days, for the geographical part of both these works is servilely copied from the *Noz-hetu-l Kolúb*. The name of the district, Anjerúd, appears the same in all the three copies of *Hamdu-llah*, which I have consulted; the orthography is also preserved in the *Haft Iqlím*, and in the *Zinetu-l Mejális*, it is merely modified into Anjereh. I can hardly doubt but that the name is identical with the title of Angúrán, which still attaches to the district E. of Takhti-Soleimán; for it is called a dependency on Sohriverd, a city of some consequence in former times, situated to the S. E. of Zenján; and the position of Angúrán, between Takhti-Soleimán and Sohriverd, will alone answer this indication; though as Angúrán is mentioned under its own name in the *Sheref Námeḥ*, a work of nearly the same age as the *Haft Iqlím*, and a district also bearing this title of Angurán occurs in *Hamdu-llah*, among the dependencies of Marághah, there is still some obscurity attaching to the subject. Indeed I was long in discovering the curious notice in *Hamdu-llah* relative to Takhti-Soleimán; for, as I shall presently show, he alludes to the same place in another part of his work, under its more ancient designation of Shíz; and I could hardly expect to find an account of the Takht under the head of Sojás or Sohriverd,‡ places removed from it at least 100 miles to the eastward, and at the

* The son of Holákú Khān; died in A.D. 1281

† See *Noz-hetu-l Kolúb*, Persian MS.

‡ Sojás, which contained the tomb of the Pagan king, Arghún Khān, son of Abekāi Khān, is now a small village, situated in the hills, at the distance of about 24 miles S.E. of Zenján. Sohriverd was in the immediate vicinity; but I believe that the name is now lost.

present day possessing with it no connexion whatever. His description, however, is too graphic to admit of any doubt as to the place to which he alludes. The mound, the palace, the unfathomable lake, the phenomenon of the waters, and the pastures, are all so many direct points of evidence; and we must resolve other difficulties, therefore, as we best may. There is also a difference in all the manuscripts regarding the Moghol name of the town; it is written *Saṭúrīk*, *Saḵúrīk*, and *Satrūk*. Whatever may have been the original title, however, it no doubt represents the word, which has been softened down into the modern pronunciation of *Sárūk*, and which is now applied to the river that rises at *Takhti-Soleimán*.

I must now say a word regarding the local title of *Takhti-Soleimán*, which will carry me up a few years anterior to the age of *Hamdu-llah*. The present popular belief, as I have already observed, ascribes the foundation of the *Takht* to Solomon and the *Dívs*; but Sir R. Porter mentions his having been told upon the spot that the name was really derived from a certain Kurdish king who reigned here; and this seems not at all improbable, for whenever the local title of *Soleimán* is met with in Persia, referring to the Jewish Solomon, as the founder of the place, it may be considered as a very ancient imposition, dating at least from the earliest ages of *Islám*.*

In the present case the title of *Takhti-Soleimán* was certainly not applied to the place in ancient times; † and we must look, therefore, for the derivation in the local history of the province, shortly preceding the desolation of the city; and here, accordingly, we find a *Soleimán Shah*, to whom it seems more than probable the title must refer.

Early in the thirteenth century there was a king of this name in *Kurdistán*, nominally dependent upon the *Baghdád-khaliphate*. He is usually called *Soleimán Sháh Abúh*; but I have failed to discover any particulars of his family. He rose into great power; the revenues of the province were increased tenfold under his vigorous and skilful administration; and *Behár*, at present a ruinous village on the frontiers of *Gerús* ‡ and *Hamadán*, became, as his place of residence, the capital of *Kurdistán*. In the *Sheref Námeḥ* we find detailed the wars in which he was engaged with the *Atábegs* of *Luri-Kúchek* to avenge the murder of his sister's husband, the former prince of that wild region. He was at first

* Thus the ruins of *Persepolis* were named *Mesjidi-Soleimán* as early as the commencement of the tenth century. Consult the *Morúju-í-Zeheb* of *Mes'ádi*.

† I consider this name of *Takhti-Soleimán* was a mere popular title, and have never met with it in any historical or geographical work whatever.

‡ Properly *Gerosb*; but now always pronounced as I have written it. The district derives its name, I believe, from a Kurdish tribe.

defeated; but afterwards, being reinforced from Baghdád, he subjugated the whole of Luristán, and compelled the Atábeg to flee to the court of Mangú Khán, at Kará Korum.

Shortly afterwards, when Holákú descended upon Baghdád, Soleimán Sháh was chosen to command the armies of the khali-phate; and it was not until the Moghol emperor obtained possession of his person and slew him in cold blood, with many of his followers, that the unfortunate Mosta'sem found himself obliged to come out of the beleagured city, and humble himself at the feet of his conqueror.* I think it not improbable that this Soleimán Sháh may have built himself a palace on the margin of the petrifying lake, which fell into ruin when his country was overrun by the victorious Moghols, and was afterwards repaired, as Hamdu-l-lah states, by Abeqái Khán, the successor of Holákú; and it is natural that the memory of his virtues should have been thus perpetuated in the country which he governed by the popular title of Takhti-Soleimán, which would still attach to the palace of his foundation.

Taking up the history of the city prior to the age of Soleimán Sháh and the Moghols, we find that in all Oriental writings previous to that era it is entitled Shíz, a name which I could have supposed had been unknown to the English reader, had I not met with a solitary passage in the "Modern Traveller," stating that "the first appearance of Zoroaster seems to have been in Azerbáján; and the first fire-temple is said to have been erected at Xiz, in Media."† The identification of Takhti-Soleimán with Shíz is of great importance; for I shall afterwards be able to prove the Shíz of the Orientals to be the Canzaca‡ of the Byzantines; and the great point of the verification in modern geography, of the Sasanian capital of Azerbáján, will thus be at once established. The following extract from the Atháro-l-Beldán, the Arabic geographical work of Zakaríyá Kázvíní, will, I think, then go far to establish this identification:—

"Shíz is a city of Azerbáján, between Marághah and Zenján: Mosa'er Ibn Mohelhel relates as follows:—"Shíz possesses mines of gold, silver, mercury, arsenic, and lead. It is surrounded by a strong wall, and contains, in the centre of the city, a small lake, which has never yet been fathomed: I tried to sound it with a line of above 4000 yards,§ but could find no

* I take this sketch of the history of Soleimán Sháh from the Sheref Náme, the Rauzetu-s Sefá, and the Noz-heja-l Kolúb.

† Modern Traveller, Persia and China. Vol. i. p. 59. [Probably from Teixeira's History of Persia.]

‡ I adopt the uniform orthography of Canzaca for the name which is written by the Greeks, Γαζακα, Γαζακίς, Γαζακίς, Καζακίς and Κατζακίς.

§ The Arabic says 14,000 yards, but I give Mosa'er, who, from his stories, appears a

bottom. The circuit of the lake is about one Jeribi-Háshimí.* At certain times, when the waters of the lake sink below their usual level, the banks, which are thus left dry, become petrified into very hard stone. There is also a very great fire-temple of the Magi at this place, from whence the sacred fire is conveyed to all the other Pyræa in the world: the peak of the cupola of this temple bears a crescent, which is a talisman for the preservation of the city; and thus, though enemies have frequently assaulted the walls, it has never yet been captured. One of the most extraordinary circumstances connected with the temple, is that the sacred fire has been now constantly burning there for 700 years, and no particle of it has ever yet turned to ashes. Another marvel is, that whenever enemies have attacked the place and erected Mangonels, to cast stones against the walls, the missiles have never struck the bastions, notwithstanding that the engines may have been erected close under the fortifications." This account is extracted from the work of Mosa'er Ibn Mohalhal, a traveller, who described the wonders of the various regions through which he passed. The greater part of the 'Ajáibo-l Beldán is written upon his authority. Another writer has the following notice:—"In Shíz is the fire-temple of Azerekhsh, the most celebrated of the Pyræa of the Magi; in the days of the fire-worship, the kings always came on foot, upon pilgrimage, to this place. The temple of Azerekhsh is ascribed to Zerátusht, the founder of the Magian religion, who went, it is said, from Shíz, to the mountain of Sebilán;† and, after remaining there some time in retirement, returned with the Zend Avestá; which, although written in the old Persian language, could not be understood without a commentary. After this he declared himself to be a prophet. The occurrence took place in the reign of Gushtásp, the son of Lohorásp, the son of Kei Káuś, king of Persia."‡

Zakariyá closes his account of Shíz, continuing to quote, apparently, from the same anonymous author, with a description of the reception of Zerátusht, by Gushtásp; and the miracles by which the prophet established, to the king's satisfaction—the verity of his divine mission. I need scarcely, I believe, enter into any

sort of Oriental Munchausen, the benefit of the Persian translation in the Seïro-l Belád, where the number is reduced to 4000. The Hashemhite yard was of 32 inches, and the asserted measurement is therefore quite preposterous, even with this reduction.

* The Jeribi-Háshimí was a square measure of 60 Hashemite yards.

† The name of this well-known mountain is written by the Orientals indifferently Sebilán and Sevilán.

‡ Atháro-l Beldán. Arab. MS. This is the work described by Casiri, under the name of 'Ajáibo-l Beldán, as the great geographical treasure of the Escorial library. See Casiri, Bib. Esc., vol. ii., p. 7

detail to show the applicability of this description to the ruins of Takhti-Soleimán; its position between Marághah and Zenján, the neighbourhood of the mines, the massive walls encircling the town, and above all, the unfathomable lake, with its petrifying banks, are quite sufficient to demonstrate the identity.

There are a few other passages in Oriental authors relative to Shíz, which corroborate the account of Zakariyá.

The two works entitled *Seïro-l Belád*, and *Telkhišo-l Athár*,* are merely abridgments of Zakariyá's Geography; and, as their notices of Shíz are thus evidently drawn from the extract which I have already translated, it is unnecessary to quote them separately.

The account which Hamdu-llah Mustaufi gives of the Takht, from his own personal knowledge, is full, graphic, and correct; but he was a compiler as well as a practical geographer;† and thus, in his chapter on Kurdistán, we find another mention of the place, under its old name of Shíz, copied, doubtless, from some of the ancient authors, whom, in his preface, he states himself to have consulted. "El Shíz," he says, "is a small town, pleasantly situated; it formerly contained the fire-temple of Azerekhsh." In all the MSS. of the *Noz-heto-l Kólub*, the names are written Shít and Arwekhsh, but I have ventured to restore the orthography; as the juxta-position of the two titles can leave no doubt of their applicability to the same place, as is described by Zakariyá, though it is probable that Hamdu-llah, in repeating the notice, failed to recognise their identity. The fact of Shíz also being included by him in the chapter on Kurdistán, whilst, in another part of his work, he extends the southern boundary of Ažerbíjân to the mountains of Síná,‡ may be sufficiently explained by its having formed a part of the government of Soleimán Sháh, which he evidently kept in view in describing the geography of the province.

* The *Seïro-l Belád* is a Persian; the *Telkhišo-l Athár* an Arabic abridgment; the latter was translated by Mons. de Guignes, and published in the *Not. des Manuscrits*, tom. ii., p. 386; it is a very poor affair, however, and quite unworthy of a place in that collection.

† There is also, I suspect, an allusion to the famous pond of Takhti-Soleimán, in Hamdu-llah's chapter on lakes, where, under the head of *Deryáchehi-Cheshmeh* (or the lake of the fountain), he says, "This is on the frontiers of Angún" (probably an error for Angúrân); the banks of it (all the MSS. are faulty here) "In the *'Ajáibo-l-Makhlúkât* it is said that the author of that work (Zakariá Kazvini) wished to ascertain the depth of it, and accordingly sent in divers, who declared themselves to have gone down 1000 yards without reaching the bottom." I do not find the story in Zakariyá himself, though it is quite in his style; and if he really did visit the place, it must have been after writing the *Atháro-l Beldán*, where he relies for his description on other authorities.

‡ The name of Síná applied by Hamdu-llah to the Kurdistán mountains, shows that the title is ancient, and that it originated, instead of being derived, from the modern capital of Sehnah, as is usually supposed.

Another brief notice of the place occurs in Yáqút's *Epitome*, called the *Morásido-l Ittilá'*, where, after determining the orthography which, without its clue, I should have found it impossible to ascertain,* *Shíz* is described as "a district of *Azerbáján*, between *Marághah* and *Zenján*." It would be interesting, perhaps, to verify these notices by a reference to some of the standard Arabic authors, such as the old geographical work ascribed to *Ibn Haukal*, to *Jeihání*, and to *Abú Zeid*; and whose original authorship is still a problem in Oriental literature.† The *Atháro-l Bákiyeh* of *Abú Rihán*, and, above all, the *Mo'jemo-l Beldán*, of *Yáqút*;‡ but these authorities are not accessible in the East; and I confess, that, as far as argument is concerned, the solitary extract from *Zakariyá* appears to me quite sufficient to demonstrate the identity of *Takhti-Soleimán* and *Shíz*.

The next stage of the inquiry must be the verification of *Shíz*, as the *Canzaca* of the Byzantines; and this will depend upon the campaign of *Khosrau Parwíz*, against the usurper *Behram Chúbín*, and the history of the famous fire-temple of *Azerekhsh*.

I shall commence with the campaign of *Khosrau*, as it is described by *Theophylact*, verifying the line of route from all other available sources. When the Emperor *Maurice* undertook to restore the fugitive *Khosrau* to the throne of his ancestors, it was arranged that the forces destined for the expedition should enter Persia in two divisions. The king himself accompanied the main body of the Romans under the veteran *Narses*, along the road by *Márdín*, *Nisíbín*, and *Sinjár*, to the *Tigris*; while his relative *Bindúyeh*, with another Roman contingent, commanded by *John*, the Prefect of Armenia, broke into the province of *Azerbáján*.

Khosrau crossed the *Tigris* at a place called *Dinabad*, which must have been near the ruins of *Nimrod*; and at the distance of one march from hence, he passed the greater *Záb*. He now proceeded to a place called *Alexandriana*, "a name derived from *Alexander* of Macedon, son of *Philip*, who there, with his Mace-

* In the different MSS. that I have consulted, I have found the name of this city written in eight different ways—*Sír*, *Shír*, *Síz*, *Shíz*, *Sebz*, *Shín*, *Shít*, and *Shebíz*; all of which variations arise from a confusion of the diacritical points, and a slight change in the formation of the last letter.

† It is curious to remark that *Abú-l Fedá's* quotations from *Ibn Haukal*, and *Yáqút's* extracts from *Abú Zeid*, both correspond, as nearly as possible, with my abridged MS. of *Jeihání*. *Zakariyá* and *Idrisí* appear to have been the only two geographers who were acquainted with *Jeihání*, and the former, too, quotes *Ibn Haukal* as a distinct author.

‡ The translation of *Yáqút's* Great Lexicon, if it could be procured entire, would be an invaluable service to Oriental literature. The Bodleian has only four volumes, but I believe that the work exists entire in the Imperial library of St. Petersburg. In the present paper I consult the only two odd volumes of the *Mo'jem* that I have ever met with in the East.

donian forces and Greek auxiliaries, captured a very strong castle and slew the barbarian inhabitants." In this obscure tradition we at once recognise the battle of Arbela; and, as I find, in the manuscript journal of a friend, that "the hill at Arbela, upon which the fort is built, was raised, the natives say, by Alexander the Great,"* it seems not impossible that, in the age of Maurice, the popular title of the place may really have been Alexandriana. From Arbela the Roman army marched, in one day, to the region of Chnaitha. This seems to be the same place which is mentioned by Theophanes, under the title of Chamaitha † (the *m* being, probably, an error for *n*), as the district where Heraclius refreshed his army, after his difficult passage across the mountains from Media, and before he passed the greater Záb, to take up a position at Niniveh: it is also, beyond a doubt, the Honítá of the Syrians, which was an episcopal see, under the metropolitan of Adiabene, from the fourth to the fourteenth century; but, as I have failed to discover its representative in Arabic geography, its exact position cannot be determined. It is evident, however, from Assemani, that Honítá must have been a short distance to the E. of Arbela; ‡ and I conclude, therefore, that it is to be looked for in the modern district of Bestórâ. Narses appears to have occupied this territory at the foot of the mountains, with a view to facilitate a junction with the Armenian contingent, which was advancing to meet him from Azerbîjân. Behrám, at the same time, must have been on the banks of the lesser Záb; and, when he found that the junction had not yet taken place, he pushed rapidly across the mountains, probably by the bye-road of Kóî Sanjáq and Sardesht, in the hopes of engaging and defeating the Armenian contingent before Narses could move to its support. Passing on rapidly in a north-easterly direction, Behrám§ is said to have at length reached a certain lake, which can be no other than the lake of Urumíyah; and the point where he would thus first have reached it, upon the line of Sardesht and Só-új Bolák, which I suppose him to have followed, would have been about the modern Bínáb. Here the scouts brought him intel-

* Rich (vol. ii., p. 18) says, "There is a local tradition peculiar to the place, that Arbel was built by Darius." I quote from the Journal of Dr. Ross of Baghdád, a gentleman who has travelled much in Arabia and Kurdistan, and whose geographical information, regarding these countries, is as interesting as it is extensive.

† See page 91.

‡ For notices of the district and city of Honítá, see Assemani. Bib. Or. Vat., tom. i., p. 194; tom. iv., p. 757; and the numerous passages referred to under the last head. There is in Hamdu-llah, a Khonísán, described as a small town in Kurdistan, upon the river Záb, which may possibly be the same place.

§ I adopt throughout the Oriental orthography of Khosrau and Behrám, instead of the *Xoréens* and *Bezáens* of Theophylact.

ligence that the Armenian troops were in full march upon the other side of the lake, having doubtless taken the direct line of Báyzíd, Khoĩ, and Urumíyah, to conduct them to Ushneĩ, from whence they could cross the mountains into Assyria. The intervening lake presented the possibility of an engagement, and Bindúych, whose interest it was to effect a junction with Khosrau without delay, is stated to have continued his march to the southward. The movements of Behráam are not specified, but I conclude that, when he found himself frustrated in his attempt to come to action with the Armenian contingent, he retraced his steps into the present country of the Mikris, to cover the city of Canzaca.

We must now return to the army at Chnaita. Narses, upon discovering that Behráam had abandoned the low country and crossed the mountains into Media, immediately threw his troops upon the great Rowándiz road, sending on orders to John, the prefect, by no means to hazard an engagement until he arrived to support them. Theophylact says, that he suddenly burst into the country of the Anisenes, and, passing rapidly through it, arrived on the fifth day (as I read the passage) at the village of Saragana: it will be interesting therefore to identify this tribe of Anisenes, as well to show the line of march followed by the Romans, as to corroborate the existence in antiquity of the great thoroughfare across the mountains by Herir, Rowándiz, and Sidek, to which, in my former memoir, I have alluded.

In the time of Pliny the Rowándiz mountains were inhabited by the Aloni, the Azones, the Silici, and the Orontes.* The Orontes to the E. of Guagamela, preserve their name in the present tribe of Rewendí; a corruption, doubtless, from Erwend,† which is a pure old Persian root, usually hellenised into Orodes or Orontes. The Silici, which Pliny classes under two divisions, gave the title of Salak among the Syrians of the middle ages to the whole mountain country between Adiabene and Media; the name is I believe now wholly lost among these mountains, though the Selek are still a powerful tribe in Luristán. The Aloni are stated by Assemani to be identical with the Alanitæ, who were known to the Syrians as inhabiting the mountains contiguous to the Gordyæans;‡ and perhaps the Alani of Hamdu-llah, which

* Plin. Nat. Hist., lib. vi.

† This mountain district is clearly distinguishable, in Armenian geography, under the name of Erovántúni.—See Saint Martin's Armenia, vol. ii. pp. 363, 429, where, however, the connexion is unnoticed. The Georgians applied to the inhabitants of these mountains the name of Oreṭi. See Klaproth's Georgian History, quoted by St. Martin, tom. ii. p. 182.

‡ For the Syrian accounts of Salacha and the Aloni, see Assemani, tom. iv. p. 708, under the head of Adjabene. It is possible that the Selekei and Silki divisions of

he describes as "a flourishing town in Kurdistan, well watered, producing corn and abounding in pastures and hunting grounds,* may have some reference to them. Of the four tribes mentioned by Pliny, the Azones thus alone remain unidentified; and though the name may possibly be referred to Hazá, or Hazene (the Chazene of Strabo) which was used by the Syrians as another title for Arbela,† yet I confess I would rather conjecture it to be a corruption from Anozes, or Anizes, the same with the Anisenes of Theophylact, especially as Ptolemy, in the route which he apparently lays down from W. to E., between Assyria and Media, names the first station in the mountains Alinza,‡ a word which I read A'li-'Anizah, or the tribe of 'Anizah; and the Armenian geographers designate all this mountain region, containing Júlamerik, Khúsháb, &c., by the title of Andsevatsi,§ a name that is certainly referable to the same root as the Anisenes of Theophylact. It is singular, however, that the Syrians, who extended their ecclesiastical sway over all these mountains, should employ no title resembling 'Anizah or Anisene; and the absence of any vestige of the name among the present Kurdish inhabitants throws another shade of uncertainty over the subject; however, I chiefly rely on the Armenian title to verify the position of the Anisenes; and 5 days' march across their mountains by the Rowándiz road would conduct the Romans to Sirgán in the plain of Ushnei, which I have already conjectured to be identical with Saragana.

Here took place the junction between Narses and the Armenian contingent; and here, or near this place, Behráh failed in a night attack with which he hoped to have surprised the Roman camp. Three days afterwards occurred the first general action between the armies. I suppose the battle to have been fought in the hilly country E. of Só-új Bolák,|| Behráh having retreated, probably after the failure of his night attack, along the high road to Canzaca; and the circumstance of his having withdrawn to a steep mountain after his defeat, from which he repelled the disorderly attacks of the Persians, who, unsupported by the Roman infantry, attempted to dislodge him, showing that the action could not have taken place in the plain country of Soldúz or Miyándáb.

the Mikri tribe may derive their names from the Silici or Salak.—See former Memoir, p. 38.

* Noz-beju-l Kolúb in the chapter on Kurdistan.

† See Assemani, in loco citato. Strabo, p. 736.

‡ Ptol., lib. vi. c. 2.

§ See Saint Martin, tom i. p. 131, and tom ii. p. 363, 429. Also Avdall's Armenia, vol. i. p. 296, where a story is told of Johan Anzevazi, and Nerseh Ervandúni.

|| Properly So-uk Bolák, but now corrupted into Só-új Bolák.

Behrá́m, on the succeeding morning, is stated to have continued his retreat over very difficult ground, inaccessible to cavalry, and if we suppose him in this march to have crossed the Jaghatú by the Kiz Koprí, and from thence to have wound among the steep and barren hills which bound Sa'in Kal'eh to the S., the nature of the ground will exactly answer the description. The Romans it appears pursued him closely, and pitched their camp at night within a short distance of his position. From hence it is said that Behrá́m descended into the plain which contained the city of Canzaca; that the Romans, still following closely on his steps, reached the river Balaroth and encamped there; and that upon the third day of the pursuit they at length came up with the fugitive in another plain to which he had farther retreated without entering Canzaca. The plain of Canzaca, which is so frequently mentioned by the Greek writers, is always a matter of some perplexity; for, strictly speaking, there is no plain whatever in the neighbourhood of Shíz; however, I can understand, from the account of Theophylact, that Behrá́m descended from the hilly range between Sa'in Kal'eh and Hisár; that at the Balaroth, which I conclude to be the main or northern branch of the Sárúk, he entered upon what is called the Šahrá or plain of Takhti-Soleimán; that he then crossed the intervening hills to the valley of the southern branch of the river, leaving Canzaca to the left, and that in this valley he fought the final and decisive battle, the disastrous result of which drove him into exile beyond the Oxus, and restored Khosraú to the throne of Persia. Khosraú and the Romans, after remaining three days upon the field of battle, are stated to have returned to Canzaca, and to have occupied the city without opposition. There are probably no means for ascertaining the local title of the Sárúk previous to the era of the Moghols, but if we consider that the Byzantines uniformly employed the Greek *b* to express the Persian *v* or *w*, and that the change of *r* for *l* is a common vulgarism in Persian pronunciation, we shall thus restore the Balaroth of Theophylact to its true orthography of Várá-rúd, or the river of Várá; a name which I shall presently show to be strictly applicable to the stream that watered Takhti-Soleimán.

It must be confessed that the loose and confused account of the Byzantine historian affords anything but decisive evidence of the identity of Canzaca and Shíz. This point I have fortunately been able to establish from the Oriental narrative of the same campaign, and in following the story of Theophylact;* it has thus

* Theophylact Simocatta, lib. v. c. 5—10. Gibbon, who had this account before him, scarcely shows his usual accuracy when he says—"After the junction of the im-

been less my object to methodise and develop the strict geographical application of his statements than to reconcile those statements with my own personal knowledge of the topography of the line of route. The only essential point of evidence for which I rely upon Theophylact is, that the great battle between Behráh and Khosrau was fought in the immediate vicinity of Canzaca, the capital of Media Atropatene. For the verification of this city of Canzaca I turn to the Oriental histories.

In two works, the *Kámil* of Ibnu-l Athír, and the Arabic history of Abúl-faraj, the battle is said to have been fought in the vicinity of Modáin:* but this is certainly incorrect. All the other writers whom I have consulted, such as Mes'údí, Mír Kháwénd, and the authors of the *Lebbu-l-Tewárikh*, *Khelásetu-l-Akhbár*, and *Gozídeh*, unite in describing the arrival of Khosrau with his Roman auxiliaries in Azerbáján, and state that the fate of the empire was decided in that province; but two authors, more ancient and more authentic than any of those which I have named, are even more explicit in their narrative, and they both distinctly mention the city of Shíz, at that time the capital of Azerbáján, as the scene of action between the two rival armies. One of these is *Aşma'í*, the celebrated preceptor of Hárún al Reshíd,† who wrote, at the close of the eighth century of Christ, a synchronous history of the kings of Persia and Arabia, previous to Islám; a work that is, I believe, unknown in Europe, and which is, perhaps, the most valuable and authentic historical volume in the whole range of Arabian literature. *Aşma'í* in describing the campaign writes in the first place that when Khosrau entered Azerbáján, his uncle Bindúyeh, and Múshíl, the leader of the Armenian troops, were residing in the city of Shíz, having been entrusted by Behráh Chúbín with the defence of the northern frontier, and that on hearing of the king's approach they immediately left Shíz, and hastened to tender their allegiance; and again in noticing Khosrau's occupation of the capital, he says, "And the king went on till he arrived at the city of Shíz, where there was a very great fire-temple, which remains to this day. Khosrau remained constantly at prayer in this temple, while he ordered his army to form an entrenched camp; and he abode for a month at Shíz, to refresh himself and his troops, and employed himself in collecting provisions and establishing bázárs.

perial troops, which Bahrám vainly struggled to prevent, the contest was decided by two battles on the banks of the Zab and the confines of Media.

* Ibn Jauzí, in the *Meráto-l Zemán*, agrees with these two authors in placing the field of battle near Modáin. The three accounts are probably drawn from the same source.

† See D'Herbelot, under the titles *Aşma'í* and *Haroun*. *Aşma'í* died in A.D. 830 in extreme old age.

The other authority is the not less celebrated Tabarí,* who mentions the arrival of Khosrau, with the Roman legions, at Shíz, a large city of Azerbáján, "containing a great fire-temple of the Magi, which (it is not clear whether he means the city or the temple,) is now no longer in existence." He then describes the battle as taking place in the immediate vicinity, and relates, that after the defeat and flight of Behrá, Khosrau proceeded to Modáin. Among the many copies of Tabarí that I have consulted, I confess I have only found two which contain this passage relative to Shíz,† but still, I think these two, in conjunction with the authority of Asma'i, are quite sufficient to establish the verification of Canzaca. In one MS. of this author, I have also found another curious passage relative to this subject which would be worth examination by Orientalists, in Europe, who have old and genuine copies of Tabarí to consult. After the relation of the combat and the flight of Behrá, it is stated that Khosrau then moved from Gáh (گاہ) to Modáin. Now Gáh appears to denote the same place, which, in the other copies, is named Shíz; and, if we suppose that a single letter has been dropped by the transcriber, and thus, restore the word to Gázeh, (گزه for گاه) we shall obtain a further proof, not only of the identity of Shíz and Gaza, (for Canzaca is but the Armenian modification of the title,) but, also, that the ancient name of the city was not unknown to the early Arabs.‡

I now pass on to the subject of the Fire-temple; and shall continue to quote from the Byzantines, illustrating their notices from Oriental authors. Procopius tells us, that at the conclusion of the third campaign between Justinian and Chosroes (Kesrá

* Tabarí is too well known to require any notice—he was born A.D. 839, and died A.D. 922.

† There is no work, perhaps, in all Oriental literature of which the copies differ so much from one another as the Persian translation of Tabarí. The diversity, indeed, is so great, that it would seem impossible for all the MSS. now in use to have been drawn from one original version by the Vizier Abú 'Alí Mohammed, as is generally supposed.

‡ I have since met with a singular confirmation of the identity of Shíz and Canzaca in the account which Firdausí gives of the engagement between Khosrau Parwíz and Behrá Chúbín. The meeting of Khosrau with his uncle Bindáyeh and the Armenian general Múshil, previous to the action, which is alluded to by Asma'i, is described at length in the Shah Nameh, and the scene of the interview, called in the Arab history the city of Shíz, is named by Firdausí, Ganjak or Kanjak (for the *k* and *g* are, in the Persian, undistinguishable), a title which is evidently identical with the Armenian Kandzag and Greek Κάτζακα. Another remarkable evidence, which verifies in the most satisfactory manner the argument I have drawn from the history of the pyreum of Azerbáján, of the identity of Shíz or Canzaca with the ancient Median capital, is the attributing by Firdausí of the name of Azer Geshep to the famous fire-temple of Kanjak, where Khosrau fulfilled his religious vows preparatory to the engagement; the very name which was bestowed by Kai Khosrau on the temple of his foundation in the city or castle of Bahman Diz.

Anúshirwán), "the Persian monarch traversed Assyria, and marched direct to the city of Ardabigan, which is in the northern part of the province, of the same name, designing to attack the Romans, from thence, by the frontiers of Persarmenia. In that city is the great Pyraüm, or fire-temple, which, of all the holy places connected with their religion, is held in most veneration by the Persians. The Magi, there, preserve the eternal fire; and sacrifice many victims, which they consult for the purpose of augury and divination. The fire of the Persians is, in every respect, similar to that which the ancient Romans named the sacred fire of the Goddess Vesta."*

We next meet with an account of this great temple of the Magi, in the narrative of the campaigns of Heraclius. When the Roman emperor, according to Theophanes, burst into Persia from the neighbouring frontier of Armenia, Khosrau Parwiz threw himself into Canzaca, with 4000 men, to arrest the progress of the invasion. The emperor, however, rapidly approached, and his light troops having attacked and driven in the outposts, Khosrau, in his alarm, evacuated the city, and sought for safety in an immediate flight. "Heraclius now," in the words of Theophanes,† "took possession of Canzaca; that city of the east which contained the fire-temple, and the treasures of Cræsus, the king of Lydia, and the imposture of the burning coals." Cedrenus continues,‡ "and when the emperor entered into the city, he found the abominable image of Chosroes, a figure of the king, enthroned beneath the globular dome of the palace, as though he were seated in the heavens; around him were emblems of the sun, and moon, and stars, to which, in his superstition, he seemed to offer adoration, as if to Gods, while sceptre-bearing angels ministered on every side, and curiously wrought machines distilled drops of water, to represent the falling rain, and uttered roaring sounds in imitation of the peal of thunder. All these things the emperor consumed with fire, and, at the same time, he reduced to ashes the temple, and the entire city."

Tzetzes,§ in his poetical history, describes this famous palace of Khosrau in nearly the same terms as Cedrenus—and he adds, that the sacred fire of the Persians, originally lighted by a thunder-bolt from heaven,|| had been preserved with extreme care through all succeeding ages, until it was now first extinguished in the fatal visit of Heraclius.

* De Bello Persico, lib. ii. c. 24, p. 147.

Theophanis Chronographia, edit. Gear. p. 258.

Cedreni Historia, edit. Xyland. p. 338.

Tzetze Chiliad. iii. c. 66.

|| Cedrenus, edit. Xyland. p. 18, and Ammianus, book xxiii, c. 6, both mention the tradition of the Persian fire having been lighted from heaven.

There is nothing in these accounts of the Byzantines to determine the position of Canzaca upon the map. The only evidence that we can draw from them is, that Canzaca was in the province of *Azerbījān*, and that it contained a famous temple, in which was preserved the sacred and unextinguishable fire of the Persians.

Now that there have been one or more great fire-temples in the province of *Azerbījān*, from the remotest antiquity, all Oriental history attests. The very name of the province is believed by the critics to be taken from the fire-worship;* although, I must observe, that, as the title of *Atropatene*, or *Atropatia*, does not appear to have been known to the Greeks of the age of Alexander; and, as Strabo's statement of its derivation from *Atropates*, the Satrap,† is corroborated by eastern traditions, which remove, however, the age of *Aderbād* to the reign of *Kesrá Anúshírwán*;‡ the question would seem still open to dispute. But I cannot here pause to discuss this very obscure subject. The two names which occur in reference to the fire-temples of this province, are *Azer-bádegán*, or *Adhor ábad egán*, and *Ažergeshesp*. If we could place any historical dependence on the *Pehleví Bun Dehesh*,§ the temples would seem to have been distinguished; that of *Ažer Geshesp* having been situated on the mountain behind *Ushneí*, probably at or near the famous *Keli-Shín*; for it is said that *Kaí Khosrau*, after chasing *Azdewjár*, from the *Var Techesht*, placed the *Ažergeshesp*, one of the three original sacred fires, in a temple upon the mountain of *Asnevand*.|| *Kei Khosrau* is generally allowed to be the *Cyrus* of the Greeks. By *Azdewjár*, I understand *Azdehák*, or *Astyages*. The *Var Techesht*, which is otherwise called *Chejest*,¶ and which is described as "a lake in *Atún pádegán*,"** with warm water, curing sickness, and engendering no animal life,"†† is, of course, the lake of *Urúmiyah*, the *Khejest*, or perhaps, *Chejest* (for the two words are liable to be mistaken) of *Ham-*

* Saint Martin, tom. i. p. 128, and Anqueti du Perron in the *Acad. des Ins. et Belles Lettres*, tom. xxxi. p. 365.

† Strabo (p. 523), who quotes *Adlephius Apollonides* and *Trogus*, is also supported by *Ptolemy*, lib. vi. c. 2, and the same inference may be drawn from *Polybius*, lib. v., c. 55.

‡ *Hamzah Isfahání*, an Arabic historian of the 9th century, gives this derivation, and a number of later authors follow him.

§ For remarks on the *Bun Dehesh*, or *Persian Cosmogony*, translated from the *Pehleví* by *Anquetil de Perron*, see p. 71.

|| See *Anquetil de Perron's Zend Avesta*, tom. iii. p. 384.

¶ *Techeshteh* is the only name employed in the *Zend* writings. *Tehejest* is given in the *Bun Dehesh* as the *Pehleví* translation.

** The *Pehleví* name for *Azerbījān*.

See *Zend Avesta*, tom. iii., pp. 395, v. 396.

du-llah Mustaufi,* and the mountain of Asnavend, which is again mentioned as belonging to Atún pádegán,† would thus seem to derive its name from Ushneî—the O'shnah, or Ashnókh, of the Syrians,‡—but still, from the accounts of Tabarî and Firdaúsi, who, in describing the pilgrimage of Kai Khosrú to the great northern temple, name it indifferently both Azerbáiján, (the Arabic formation of Azer-bádegán) and Azergeshesp; and, from many other points of evidence, I believe the two titles usually to refer to the same Pyræum which was contained within the city of Shíz. Indeed, I see no other way of reconciling the many apparent discrepancies which have arisen from a confusion of these names, than by supposing the name of A'er-bádegán§ to have been the mere territorial appellation, employed to denote the temple, in the same way as other Pyræa, though they had each distinct and particular titles, were still, commonly called the fire-temple of Belkh, the fire-temple of Fars, the fire-temple of Kúmis, &c.; whilst the designation of Azergeshesp was used in reference to the particular species of the sacred fire which was preserved there; other temples that contained the same fire, having also the same name, and the words being thus at length employed, according to the Borháni-Kāfi', to denote a fire-temple in general; and, I believe the real ancient temple of Azer-bádegán, or Azergeshesp, situated in the city of Shíz, or Ecbatana, the great capital of Media, to have been the same which, at some period after its re-edification by Ardeschir Bábegán, the restorer of the Magian religion, assumed the name of Azerekhsh, and continued to be the high place of the fire-worship to the epoch of the Arab invasion.

In working out the history of this fire-temple, it will be necessary to abandon, for once, my usual plan of tracing up the stream of time, from modern days into antiquity—for, the subject forms a distinct and important mass of evidence, the force of which would be altogether lost if brought in piecemeal, according to chronological order, in the different stages of the history of the city: I shall, therefore, anticipate some of my results, and give

* See the former memoir, p. 10.

† Zend Avesta, tom. iii. p. 366.

‡ In the Zend prayers, also, Mount Asnavend is always mentioned between the Var Khosrau, or Lake of Ván and Vár Techesht, or Lake of Urumiyah, and has thus a direct geographical application to Ushneî. See Zend Avesta, tom. iii. pp. 22—328.

§ The old Persian name of the province was Adorábádegán, Adorbádegán, or Adorbáigan, which was Arabicised into Azerbáiján, or Azerbájan, and the Byzantine titles of Ardabigan, Αδερζαβαν, Αδερβιζαν, and Αδερβαδζαν, nearly resemble the ancient Oriental orthography. I usually follow the writing of Azerbáiján, except when quoting from authors where I am obliged to observe their own spelling. The Orientals sometimes combine the Arabic and Persian formations, and write the word Azerbádegán, or Azerbáigan.

the illustration of this difficult subject, as far as I am able, in a regular and connected form.

With regard to the original foundation of this temple, we cannot expect any very satisfactory evidence; indeed, there is a great diversity of opinion among Greek authors, as to when the building of temples for the preservation of the sacred fire, was first introduced into Persia. Herodotus is distinct in his assertion, that in his day, temples were unknown;* yet the Oriental accounts would assign the creation of this *Pyraeum* to a much earlier age. I repeat, therefore, the tradition of the Persians, rather with a view to determine the position of the temple of *Azerbījān*, in the ancient capital of the province; and to connect their notices of the place from its earliest ages down to the extinction of the fire-worship, than in the hopes of being able to assign it to any definite era of antiquity.

We find the following notice in *Mes'ūdī*, an author who wrote early in the fourth century of the *Hejrah*;† and who consulted on the subject of Persian antiquities a most curious work, entitled "*Tebektegīn*," or "*Tebekten*," which he states to have been translated from *Pehlevī* into Arabic, by the celebrated convert to *Islām*, '*Abdu-llah Ibn Mokaffa*':—"Among the fire-temples anterior to Zoroaster was one," he says, "in the city (or cities) of *Shīz* and *Ar-Rān*. It contained idols, which were removed by *Anúshīrevān*: it is also said that *Anushīrevān*, on arriving at this temple, removed the sacred fire that was preserved in it to another place, named *Birket*."

The double title of *Shīz* and *Arrān*, which *Mes'ūdī* applies to the city that contained the temple, I shall explain hereafter. The passage occurs, with the same orthography, in all the five MSS. of his work that I have consulted; and that he can only allude to the place which is named simply *Shīz* by other authors is evident from a second passage in his history, where, in repeating a story current among the early Persians, relative to *Kei Khosrau*, he employs the same expression of *Shīz* and *Ar-Rān*, and adds that they were a city (or cities) of *Azerbījān*. This remarkable passage also, which commences, "and *Kei Khosrau*, when his maternal grandfather was killed in *Shīz* and *Ar-Rān*, a city or cities of *Azerbījān*," is, I think, of great interest, independently of the geographical allusion; for though *Mes'ūdī*, in common with all the old *Pehlevī* legends, supposes the ancestor of *Kei Khosrau* to have been *Afrásiyáb*, the Turk, yet the coincidence of his state-

* Lib. i., chap. 131.

† *Mes'ūdī*'s epitome, named the *Murūju-ḡ Zeheb*, the only one of his three historical works now extant, was composed in A.D. 944. It is a most interesting miscellany of history, geography, ancient legends, and the literary gossip of his day, and would be well worth the attention of our Oriental Translation Fund.

ment with the defeat and perhaps the death of Astyages, the real maternal grandfather of Cyrus, or Kei Khosrau, at this very city of Shíz, or Ecbatana, is, I think, too striking not to have some foundation in truth. That the wars, indeed, between Cyrus and Astyages are strangely jumbled in Oriental romance with the contests of Kei Khosrau and Astyages, everything tends to prove. Tabarí, in describing the final defeat of Afrásiyáb, says that he fled from Turkistán, towards Rúm, and was finally captured and slain at a place, which, in one MS. is named Rán, the Ar-Rán of Mes'údí, where he had sought to conceal himself in a hauz, or reservoir of water; and I do not doubt but that a reference to other ancient histories, not here available to research,* would confirm this evidence of the identity of Shíz and Ar-Rán with the Median Ecbatana, in showing them to have been the common scene of the great victory of Cyrus or Kei Khosrau over his maternal grandfather.†

But to return to the temple of Azerbījān. Mes'údí ascribes to it an indefinite antiquity, prior to the age of Zoroaster; but most authors agree in referring the foundation particularly to Kei Khosrau. Thus Firdausí, in the Sháh Námeḥ, describes the attack by Feriborz, the son of Kei Káuś, upon a famous fortress of Azerbījān, which was named the Castle of Behmen, and which, I believe, as far as the tradition may be received, to refer to the Median citadel of Takhti-Soleimán. Feriborz and all his generals were defeated in the attack, and fell themselves into the hands of the enemy, by whom they were long kept in captivity, until Kei Khosrau, to prove his superior prowess, led a large army in person against the Median fortress, and succeeded in storming the place, and delivering his uncle and other countrymen from their confinement;‡ and in the same castle, Firdausí says, Kei Khosrau, to commemorate his victory, erected the celebrated fire-temple, which was known under the name of Azer Geshep. The Persian history of the Mojmelu-l Tewárikh

* In default of the Pehlevi chronicles, and their translations by Ibn Mokaffa' and Ibn Mokanna', we can only hope to get at the true spirit of the ancient legends by consulting the Arab authors prior to the age of Firdausí; for the great bard of Persia seems to have generally sacrificed truth to poetical effect; and unhappily the splendour of his fictions threw altogether into shade the sober narrative of earlier writers, and has been almost uniformly adopted as the basis of history in later ages.

† Ibn Athir and Ibn Júzí, two of the best Arabic historians, and Ahmed Efendi, a modern author, in his compilation called the Seráju-l Mulúk, all mention the final capture of Afrásiyábin, the Azerbījān, but without naming any particular city.

‡ In Firdausí the capture of Behmen Diz, or the fort of Behmen, is proposed by Kei Káuś, as the means of deciding the rival claims of Feriborz, his son, and Kei Khosrau, his grandson, to succeed to the throne of Persia; and later writers have supposed this Behmen Diz to be identical with a fort of the same name on the mountain of Sevilán, near Ardebíl, though I do not find the name of Ardebíl mentioned in the Sháh Námeḥ.—See Saint Martin, tom. ii. p. 192; D'Herbelot, under the heads of Ardebíl and Kei Káuś; and Noz-ḥeto-l Kolub, in the notice of Ardebíl.

follows this story of Firdausi; and the Georgians, as they are quoted by Saint Martin, retain in their annals the same tradition. Tabarí and Firdausi both describe the subsequent pilgrimage of Kei Khosrau to the temple of Azer Geshep or Azerbiján, recalling to mind the expression of Zakariyá, that the ancient kings of Persia always performed a pilgrimage on foot to the great Pyræum of Shíz; and the Bundehesh, though it perhaps errs in the locality, still assigns to Kei Khosrau the building of the Azer Geshep. On referring to the Greeks, we find that the Median Ecbatana was in reality the scene of the strange events that marked the childhood of the great Cyrus. He returned to it again, also, according to Herodotus, after his famous Lydian campaign,* and doubtless deposited in its impregnable citadel the captured spoils of Cræsus, before he commenced his expedition against Babylon. We thus see the origin of the story mentioned by the Byzantines, that Canzaca contained the treasures of Cræsus. Hamdu-llah, in the extract which I have before given, repeats a tradition of the city having been founded by Kei Khosrau; and in a MS. of the 'Ajáibo-l Makhlúkát that I once saw,† I found an account of this same city of Shíz, in which it was stated that the palace contained for many ages the jewelled throne of Kei Khosrau; that Anúshireván embellished the city, made it his place of residence, and greatly beautified the famous throne; and that shortly afterwards, when Islám arose, the throne was hurled by the inhabitants into the unfathomable lake, to prevent its falling into the hands of the Arabs. These are all so many points of evidence to connect Ecbatana, Canzaca, and Shíz; but against the foundation of the temple by Cyrus or Kei Khosrau, we have the anonymous author quoted by Zakariyá, who distinctly ascribes it to Zerátusht or Zoroaster; and the statement in the modern traveller, from wheresoever it was drawn,‡ would seem to refer the temple to the same origin.

I know not upon what exact grounds Anquetil du Perron pretends to prove that Zoroaster was a native of Urumiyah.§ The Zend and Pehleví works which he translated, afford certainly most insufficient evidence; and the Indian poem of the Zerdusht

* Lib. i. c. 153.

† This MS. was brought to me some years ago, when I was not aware of its value; and, being full of errors, I refused to purchase it. It contained two chapters "on cities" and "on castles," which were replete with the most interesting geographical information; and as I have since examined nearly a hundred copies of this work, Arabic as well as Persian, without finding one other which possesses those two remarkable chapters, I regard it as perhaps unique.

‡ The orthography of Xiz points out a Spanish authority; but I have not the least idea who this may be.—[Probably Teixeira's *Relaciones de los Reyes de Persia*. En Amberes, 1610.—F. S.]

§ In the life of Zoroaster prefixed to the Zend Avesta, Anquetil always assumes that this point has been already proved in his memoir, read to the Academy, which I have not to refer to.

Námeh, must be, I should think, a very doubtful authority. Irán Vij appears in the Bun Dehesh as the birth-place of the Magian prophet; and there are many reasons which incline me to regard that place, the object of so much mystical awe and veneration in the old Persian legends, as identical with the Var of Jemshid, the Ecbatana of Dejoces, and the Shíz of the Arabs; from whence, according to the traditions mentioned by Zakariyá, Zerátusht really arose. But I have no occasion here to investigate the most abstruse subject of the age and country of the famous Zoroaster. I shall only remark, that since, in the numerous cuneiform inscriptions of Persia, chiefly of a religious nature, which exhibit at the present day the imperishable records of the times of Darius and Xerxes, no trace of the name or character of the prophet Zoroaster is to be found: it is obvious that he either could not have lived in the age which is usually assigned to him, or that we have most erroneous notions of the influence that he exercised upon the national religion of the country. If, however, he was a native of northern Media, the most likely scene of his first appearance would be the capital of the province; and in this view, perhaps, the statements of Zakariyá, with respect to Shíz, may be taken into some account in weighing its claim to be considered the representative of Ecbatana.

Little can be gleaned from Oriental authors regarding this early and obscure period in the history of the temple. Some writers, indeed, assert that Queen Homái, the fabulous daughter of Behmen, after abdicating the throne in favour of her son Dáráb, closed her life in the fire-temple of Azerbáján;* and this solitary tradition is, I believe, the last notice of the place that we possess, in the ages preceding the Macedonian invasion.

During the rule of the Arsacidan dynasty in Persia, we know that the religion of Zoroaster gradually fell into disuse; that an idolatrous worship partially usurped its place; that the genuine writings of the prophet were corrupted, or, perhaps, altogether lost; and that the holy fire languished in obscurity on the desecrated altars of the Magi. It is not surprising, therefore, that in this long period of religious darkness, while we have abundant evidence of the existence of northern Media, as a flourishing and independent kingdom, and while the Greek and Latin accounts of its famous capital are minute and satisfactory, we should still be without any notices of the temple contained within its precincts. The fire-worship, however, was at length restored with greater splendour and respect than it had ever previously enjoyed: the priesthood framed a new religious code, which they unblushingly ascribed to Zoroaster; and Ardeschír Bábegán under-

* See the quotations in Ouseley's *Travels*, vol. i. p. 138.

took the re-establishment of all the great *Pyræa* of the kingdom. We cannot doubt that the temple of *Azerbîjân*, the high place of the Magian worship, revived at this period from its long sleep of desecration and obscurity, and that it owed to the royal munificence of *Ardešhîr* the wealth and celebrity that it continued to enjoy during the four succeeding centuries of Sasanian dominion. When *Mosa'er* declares that the sacred fire had been preserved upon the altar of *Shîz* for 700 years, he can only refer to its having been placed there by *Ardešhîr Bâbegân*; and even in this case there must be a slight exaggeration; for in reality six centuries only elapsed between the ages of *Ardešhîr* and *Mosa'er*.* The Orientals, who describe minutely the triumphant progress of *Ardešhîr* through the southern provinces of his empire, and detail the many cities of his foundation in *Fârs*, in *Khûzistân*, and in the Arabian *Irâk*, pass over his northern campaigns almost without notice.† We are thus obliged to turn to the Byzantines to confirm the inference of that monarch having re-edified the city of *Canzaca*; and this we find in *George of Pisidia*, a writer who was contemporary with *Heraclius*, and whose panegyrical poems on the Persian expeditions afford some faint aid in illustrating that obscure period of history. The title that is applied by this author to the great capital of Persia, conquered by *Heraclius*, is *Dar Artesis*; and though it must be confessed that his turgid poetry is not easily convertible to geographical argument, yet I think there are some descriptive points connected with the name which distinctly prove its application to the city called *Canzaca* by the other historians of the war. *George of Pisidia* states that the city owed its origin to *Artasar*, the humble individual who overthrew the Parthian dynasty, and established a line of kings which continued unbroken to his own time; that it was built in almost an impregnable position, and after the fashion of a lofty tower; that it was situated as much northerly, in regard to the Persian territories, as it was southerly in respect to *Constantinople*; that when *Heraclius* approached, it formed "the abode of *Chosroes* and the *Magi*, with the appointed guardians of the sacred fire;" that it was attacked by *Heraclius* with his full array of warlike engines; and that "in here capturing the ancestral

* The age of *Mosa'er*, which it is of some interest to ascertain, may be placed about A. D. 825. At least in an extract from his work given in the *Mo'jemo-l Beldân*, under the head *Nihâwend*, he states himself to have travelled with *Abû Dalafo-l 'Ajeli*, who we know died at *Baghdâd*, A. D. 839. See *Reiske's Abû'l Fedâ*, vol. ii. pp. 175 and 685. *Ardešhîr Bâbegân* began to reign A. D. 226.

† *Tabari* and *Ibn Athîr*, in the *Kâmil*, slightly notice the wars of *Ardešhîr*, in *Armenia*, and *Azerbîjân*. The Armenians are more diffuse; but their accounts are confined to their own country. *Moses of Chorene* mentions the fire-temple built by *Ardešhîr* at *Pakavan*, supposed by *Saint Martin* to be *Bâkû*, but says nothing of *Azerbîjân*. See *Moses, Chor.*, p. 199; *Saint Martin*, tom. i. p. 153.

treasures of Khosrau, and reducing to ashes the idols of Persia, the emperor offered unto God the auspicious first-fruits of his success."*

I mention all these circumstances, because Foggini, the learned editor of George of Pisidia, has, most unaccountably, considered Dar Artesis to refer to Dastágerd, or Deskereh, a city which was situated in the extreme south of the Persian dominions, which was founded by Hormuz in a plain country, and without any extraordinary defences, which surrendered to Heraclius without opposition, and the capture of which, occurring at the close of the last Persian campaign, could not possibly be called the *first* fruits of the emperor's success.† No one who examines the subject will, I believe, doubt that the Dar Artesis of George of Pisidia represents Canzaca or Shíz, and that a curious confirmation is thus obtained of the re-edification of the place by the founder of the Sasanian dynasty. The title of Dar Artesis merely signifies the house of Ardeshr; and as that monarch imposed his name, as a sort of honorary distinction, on numerous cities which he re-established,‡ Canzaca may be supposed in the same way to have retained the epithet, without at all losing her proper and vernacular title. The subject, however, is very difficult of explanation; for Arabic and Persian authors give us no assistance whatever, and the Syrians also, who illustrate so much of the obscure geography of other parts of Persia, having failed to establish Christianity in Azerbáiján during the Sasanian ages, are here, for the first time in vain, consulted. There is a solitary notice in Assemani of a Median city, prior to the establishment of Islám. It is called "Beth Raban, a city of the Medes,"§ and was held as an episcopal see in the reign of Firúz, the grandfather of Anúshiréván, by Abraham, one of the famous scholars of Edessa, who imbibed at that place the tenets of Nestorius, and afterwards spread the heresy throughout the East; but whether this place can have any reference to Canzaca, the capital of the Medes, and the Rán of the Arabic geographers, I cannot of course pretend to decide. The name Artesis I conclude to be the Armenian form of Ardeshr, which is written by St. Mar-

* See George of Pisidia, *Heracliad* Acros. ii. vv. 167-216.

† See *Hist. Byzant.* N. Appendix, p. 118.

‡ Among others I may mention, from Tabarí and Ibn Athír, Ardeshr Khorreh or Júr, afterwards called Firúzábád; Riv Ardeshr or Ríshehr, near Abúsheher (Bushier); Hormoz Ardeshr or Ahváz; Asterábád Ardeshr or Kerkhi-Misán (Spasiná Charax); Behmen Ardeshr or Forát Misán (Perath Mesene of the Syrians, near Basrah); Nehr Ardeshr or Nehr Sir (on the site of Seleucia); Berdeh Ardeshr or Hēzeh (Arbela), and many more less known.

§ Tom. i. p. 352, note 4. I almost think, however, that Assemani is mistaken in the statement to which I here refer, and that the name of Beth Rabán, constantly attached to that of Abraham, one of the famous scholars of Edessa, denotes in reality his Syrian place of nativity or residence, rather than his diocese in Media.

tin Ardaschès, and perhaps, (for really in no other possible way can I account for the derivation of the name,) in the last syllable of the word, we may recognise the title of Shíz, that continued to attach to the city after the establishment of the Mohammedan power.

In the Sasanian ages we have frequent notices of the temple of *Azerbáiján*: *Bahrám Gúr* appears to have especially honoured it; for, on returning from his Turkish wars, he consecrated to it the rich and varied spoils of the enemy: the captive wife of the Scythian king was at the same time attached to the temple as a menial, and *Bahrám* is even stated to have brought to the same place his bride *Sepined*, the loveliest princess of India, there to abjure, before the sacred and eternal fire, the idolatrous worship of her country.* The place is named indifferently the temple of *Azerbáiján*, and the temple of *Azergeshesp*, and its pre-eminence over the other *Pyræa* of the kingdom is again mentioned by *Tabarí*, who says, that "of all the fire-temples of Persia, *Bahrám* respected this the most."

In the reign of *Anúshíreván* it continued the great object of popular veneration. On this head the evidence of *Procopius* is full and decisive; and we may remark, that from its being usually termed the temple of *Aderbigan*, that author was led to suppose the title to refer to the city in which it was situated.† *Firdausí* describes, with some detail, the visit of *Anúshíreván*, and the munificent offerings which he lavished upon the temple and its guardians; and the '*Ajáibo-l Makhlúkát*, in also noticing the embellishment, by the same king, of the throne of *Kei Khosraú*, at *Shíz*, affords another link of evidence to connect together the original traditions of *Cyrus* at *Ecbatana*, the establishment of the court of *Chosroes* or *Anúshíreván* in the city of *Ardabigan*, and the Byzantine tales of the treasures of *Croesus*, which were deposited in the citadel of *Canzaca*; and when we further remark that the peculiar circumstance of containing a great fire-temple, the most holy of all the *Pyræa* of the *Magi*, is common to the Byzantine accounts of *Ardabigan* or *Canzaca*, and to the Oriental descriptions of this city of *Shíz*, we draw an obvious inference that the various names must necessarily refer to the same place, and that the identification of the Sasanian capital of *Atropatene* is thus determinately proved. *Mes'údí*, in the extract which I

* See Ouseley's *Travels*, vol. i. pp. 137-139.

† The territorial title was really, it would appear from the following passage in *Tabarí*, applied to the city as well as to the temple:—"The fire-temples of the Persians were in *Adorbáigán*, and there was the origin of the fire-worship. Fire in *Pehlevi* is called '*Ador*,' from whence came the name of *Adorbáigán*. The province commences from *Hamadán* and the river of *Zengán*, and extends to *Derbendi-Khizrau* (the Caucasian gates), and the cities contained within these limits are all named *Adorbáigán*."

have already given, mentions that Anúshíreván, on his visit to this temple, removed the sacred fire to a place called Birket; but this can hardly have been the case, as in the succeeding reign we find the temple still retaining its sacred character, and in the time of Mosa'ér the fire was believed to have been preserved unextinguished upon the altar since the days of Ardeshr.

There is, besides, no Pyræum, or sacred place, which I can find, in all Oriental geography corresponding with the Birket of Mes'údí; and I am rather inclined, therefore, to suppose that, as the word merely signifies a reservoir, it may refer to the natural lake of the city, on the margin of which Anúshíreván either rebuilt, or at least repaired the temple. Mes'údí, also, in another passage, connects the name of Anúshíreván with the most holy of all the fires of Persia, in a way which I confess led me, at first, to refer his allusion to this same temple. "Anúshíreván," he says, "found the original fire which had been worshipped by King Jem, and which had been removed by Kei Khosrau from Khvárezm to Dárábjird; and he transferred this fire, the most holy of all those fires that are worshipped by the Persians, to the temple of Káriyán; and when Islam arose, the Magians, in apprehension lest the flame should be altogether lost, removed a part of it to Nisá and Beizá,* cities of Fárs, and left the remaining part at Káriyán, in order that, if it should chance to be extinguished upon one altar, it might survive upon the other." Finding the name written in one manuscript Káziyán or Gáziyán, I was led to refer it to Gaza or Canzaca, in the same way as I have proposed to read Gázeh, in Tabarí, for Gáh; but as all the other copies of Mes'údí write the word Kárián, which is explained by Yáqút, as the title of "a small town in Fárs, containing a castle situated upon a mound of earth, which is impregnable to force;" and as a fire-temple in the country of Fárs of this very name continued to the time of Jeihání, in the eleventh century of Christ, to be the most venerated of all the Pyræa of the province, I cannot now doubt but that the true orthography is Káriyán, and that the notice of Mes'údí refers to the great Persian temple,† the site of which, however, must, I fear, still remain a mystery.

* At the time of the Arab invasion among the cities of Fárs, Beizá was only second in consideration to Isfekhr. The early Oriental authors describe at this place sculptures and ruins which I can hardly doubt to be of the same class as those at Persepolis, and the discovery of which will probably reward the search of the first European traveller who examines the district. The name of Beizá is now applied to the whole mahalleh or district north of Shíráz, and west of the Merdásht plain. Nisá, conjoined with Beizá by Mes'údí, is probably the Niserga of Ptolemy, and perhaps the Nisacus of the map of Peutinger.

† Mes'údí's account of the Persian fire-temples is abridged by Shehristání, and from him copied into Hyde (*Rel. Vet. Pers.*, p. 153), where the name of Káriyán, however, is corrupted into Kármán, and assigned to the city of Kírmán.

In the reign of Hormuz, the son of Anúshíreván, Khosraú Parvîz gave the first evidence of his attachment to the temple of Shîz in taking refuge within its sacred precincts against the anger of his father. "Parvîz," in the words of Tabari, "arrived in Azerbîjân, and entering the temple of Azêrgeshesp, he there employed himself in devotional exercise. When he was restored to the throne of Persia by the intervention of Roman aid, after his father's death, he also held his first court in Canzaca or Shîz, as I have already shown from Theophylact and the Oriental histories." On the approach of Heraclius he again occupied the city, and "abode there with the Magi and the guardians of the sacred fire;" and when he was obliged to evacuate the place, he carried with him, in his flight to Dastâgerd, (as I understand Theophanes,) the treasures of Cræsus and the imposture of "the burning coals." This imposture of the burning coals answers exactly to the description of Mosa'er, that "the fire had been preserved for 700 years, and no part of it had turned to ashes;" and as the fire seems to have been taken away by Khosraú in his flight, we may infer that it was preserved unextinguished upon some altar inaccessible to the attack of the Christians; and that when Persia recovered for a short period her domestic tranquillity, after the death of Khosraú and the retirement of the Roman legions, it was restored to its original temple, probably by Rostom, the governor of Azerbîjân,* and continued to blaze there for two centuries later, when it was seen and described by the Arab traveller. The description which the Byzantines give of the image of Khosraú, seated under the dome of the palace or temple, amid the emblems of the sun, and moon, and stars, is certainly curious, and recalls to mind the later Sasanian coins, which thus uniformly exhibit the head of the king surrounded by figures of the heavenly bodies; perhaps, too, these are the idols which are mentioned by Mes'ûdí in the temple of Shîz; though he must be in error in supposing them to have been removed by Anúshíreván.†

The Byzantines pretend that the city and all it contained were doomed by Heraclius to one great and general conflagration; but this is, obviously, false, as I shall now show in briefly tracing

* See Avdall's *Armenia*, vol. i. p. 358.

† Since writing the above I have met with the following passage in the *Foreign Quarterly Review*, No. XLIII. p. 79:—"Mes'ûdí affirms that even in his time statues and pictured representations of forms terrestrial and celestial were to be found at *El Sheez*, the seat of the Magi." I have searched the *Murûju-ż Żeheb* in vain for the statement which is here referred to; and as Tabari also, who wrote nearly forty years before Mes'ûdí, declares the temple of Shîz to have been in ruins in his day, I cannot help thinking the reviewer mistaken in his authority. But still, from whatever source the information may be drawn, it is most interesting, and strikingly accords with the Byzantine stories of Canzaca.

the steps of the Romans, after the flight of Chosroes to Dastagerd. Heraclius, after the conquest of Canzaca, moved upon a city called Thebarma, by Theophanes, which he captured and burnt. This is supposed by D'Anville to be Urumiyah, and the verification has remained unimpeached to the present day.* As Urumiyah, however, would have been altogether out of the line of Heraclius's march from Takhti-Soleimán, upon Dastagerd, whither, it is evident, he was pursuing his enemy, I cannot admit the identification, which, indeed, appears solely to rest upon a fancied similarity of sound, and upon the pre-supposition of Canzaca being represented by Tabriz. I should look for Thebarma somewhere in Kurdistan proper; but I confess myself to have failed in discovering any name that might reasonably be brought forward to replace the identification of D'Anville. From Thebarma, Heraclius continued the pursuit of Chosroes through the mountainous defiles of Media; and thus, whether he followed the southern road by Kirmánsháh, or the western route through the present district of the Bábáns, the nature of the country will suit well enough with the description. On the approach of winter, the emperor retraced his steps to the warm pastures of Albania, and with the return of spring he again prepared to renew the contest. This, his second campaign, in which Gibbon supposes him to have penetrated into the heart of Persia, appears to me to have been confined to the countries bordering on the Arras.† The great city of Salban, at any rate, with the capture of which the campaign terminated, I have no difficulty in identifying with the Armenian capital of Ván. Sál is, evidently, the Kurdish Shál, or Shár, (for the *l* and *r* are constantly confounded,) signifying a city; and Bán is the same word which is written Buana by Ptolemy, and Iban by Cedrenus;‡ the title of Salban, thus, being literally the city of Ván. From the ancient celebrity of the city, founded, as it is supposed, by Semiramis, the exact applicability of the geographical indication, and the perfect identity of name, there can be no question, I think, regarding this illustration, which seems, nevertheless, to have escaped the observation both of Gibbon and of D'Anville.§

When Heraclius prepared to leave Salban, two roads were open to him, both mountainous and difficult, one leading to

* Ancient Geography, vol. ii. p. 22.

† In following the steps of Heraclius, I have not the means of collating many authorities which would be of assistance to the enquiries, such as Nicephorus, Eutychius, the *Historia Miscellanea*, and the MS. *Chronicles of George the Monk* and *Simeon the Logothete*. I chiefly follow Theophanes and Cedrenus.

‡ See Saint Martin, tom. i., p. 138.

§ Gibbon observes in a note to his 46th chapter—"I cannot find, and what is much more, Mr. D'Anville does not attempt to seek, the Salban, Tarantum territory of the Huns, &c., mentioned by Theophanes."

Tarantum, the other into Syria. That by Tarantum was the shorter, but destitute of supplies, the other conducting over Mount Taurus, into Syria, was also difficult and blocked by snow, but the country through which it lay furnished supplies in abundance. The emperor chose the latter road, and at the end of seven days' most laborious marching, he reached the Tigris, from whence he prosecuted his route to Martyropolis and Amida. These two routes are certainly to be recognised; the one, in that conducting from Ván through the Hekárrí country and Rowándiz, to Arbíl; and the other, in the high road which leads from the same place, by Betlís to Miyáfárekín and Diyár-Bekr. The name Tarantum I believe to be a corruption of Revend or Orontes,* and the line which conducts through those mountains is the most impracticable in all Kurdistán. Heraclius pursued the high road, and traversed the interval between Ván and Betlís, where he would first reach the Tigris,† in seven laborious marches; the distance being, according to the estimate of Colónel Sheil, published in the *Geographical Journal*, nearly 100 miles.‡

Heraclius, again, in the autumn of the succeeding year, undertook his third and last expedition into Persia. Crossing the Arimenian frontier in September, he must have pushed through Ažerbíján with extreme rapidity; for, on the 9th of October we find him refreshing his army at Chamaetha,§ which I suppose to be an error for Chnaitha,|| after having crossed the mountain barrier between Media and Assyria. The Persian general, who was sent from the south to oppose him, advanced to Canzaca, and from thence followed the emperor across the mountains, suffering greatly on his march from the scarcity of supplies. It is not clear how the Romans were employed during the ensuing month;¶ but, on the first of December, Heraclius is stated to have passed the greater Záb, and, shortly afterwards, he fought the great battle of Niniveh. Returning to that river after his victory, he again crossed it, and then continued his march to the lesser Záb, along the high road, which, until times comparatively modern, seems to have followed a line nearly parallel to the Tigris, and at

* The orthography of all the names in Theophanes is most corrupted, as I shall have frequent occasion to remark.

† The Betlís cháí is not the true Tigris, but, as one of the most considerable of its early tributaries, was probably mistaken for such by the Greeks.

‡ *Journal of the Royal Geographical Society*, vol. viii. part i., p. 71.

§ Written indifferently *Χαμαθς* and *Χαμνθς*.

|| The Honita of the Syrians, see page 72.

¶ Theophanes says that the emperor only remained 7 days at Chamaitha, and this is confirmed by the letter of Heraclius to the Senate, where he says that he had previously reported his movements from Oct. 17th to March 25th; the 17th of October being the very day on which he would have broken ground after his halt—he was probably employed in ravaging the district of Marga, the Merj of the Arabs and modern Kóí Sanjáq, between the two Zábs.

a short distance from its banks. Beyond the lesser Záb, Heraclius occupied a position which is entitled Iesdem, both by Theophanes and in the emperor's own letter to the Senate; and which, as we find no city or town of that name in the province of Adiabene, I conclude to have been a mere settlement of the heretical I'zedís,* or, as they were afterwards named by the Mohammedans, Yezidís. Continuing his march from hence, he next reached a town containing a palace of Khosrau, which he destroyed. This place, both in Theophanes and Cedrenus, bears the title of Rusa, a name, however, which, as it does not admit of illustration from the contemporary Syrians, who afford the most copious geographical notices of all this part of Asia, I cannot help regarding as false. If we suppose, at the same time, a transposition of letters, we shall obtain the word Sura, and this we may, perhaps, regard as identical with the Sori, or Beth Sori, of the Syrians; a city which was certainly situated in this vicinity, as it formed an episcopal see during the Sasanian ages, under the metropolitan of Beth Germa; and the disappearance of which, from the Syrian annals, after the era of Mohammed, may possibly be explained by this very visit of Heraclius.

After destroying Rusa or Sura, the emperor went on to the Torna, a name which at once recalls to mind the Tornadotus of Pliny; and which modern geographers, relying on the evidence of Otter, have not scrupled to identify with some imaginary Odorneh. Not only, however, is there no river of this name in all Oriental geography, but, as far as I am able to form an opinion, there never has been such a name employed in the country, either in times past or present. The river which Otter is supposed to denote by the name Odorneh, is, in reality, known by no other title than that of the 'Adheïm.† It is formed by the confluence of the three petty streams of Kerkúk, Tóúk, and Tóz Khurmetlí; and is of too unimportant a character to be noticed by the Arab geographers. The 'Adheïm, also, will in no way answer either the description or the geographical indication of Theophanes. The Torna was not fordable, as is evident from the emperor's apprehension lest the Persians should dispute the passage of the bridge, and his satisfaction afterwards, at being allowed to cross the bridge unmolested; while, at the season of the emperor's visit, the end of December, the 'Adheïm would scarcely have had two feet of water, and could have presented no impediment to his passage. Again, as the emperor celebrated Christmas at the lesser Záb, and pitched his camp at Beklam, beyond the Torna,

* The expression in the Greek is the houses or dwellings (οἶκος) of Iesdem, in evident reference to a tribe, as it appears to me, for otherwise the whole would have been αἶμα, χωρίον, or σίλιν.

† The *ḥ* in Arabic, is sounded like the *th* in *then*, in Persian like a common *j* or *z*.

on the 1st of January, one day having been, also, lost upon the road in the destruction of Sura, five marches only could have been consumed between the rivers. The distance from the lesser Záb to the 'Adheïm, at the nearest point where Heraclius could have reached it, is nearly 100 miles, which is certainly too great a distance to be travelled by an army in five days, with an enemy in front. The identification, therefore, of the Torna of Theophanes with the Odoneh of Otter, supposing this name to represent the 'Adheïm, is thus shown to be untenable. I will now endeavour to give the true illustration.

The Torna of Theophanes, and the Tornadotus of Pliny, I consider to be both represented by the northern arm of the great Nahrawán canal. This is named by the Arabic geographers Kátúr; and, in the last syllable of the word, I believe that I recognise the title of Torna.* The canal is described by Tabarí as a work of the Sasanians, and Zakariyá Kazvíní distinctly ascribes it to Anúshiréván, but it is probable that the Sasanians only repaired an ancient excavation, which dated from the time of the Assyrian monarchs.† It was derived from the Tigris, at three points; the most northerly of which was near Imám Dúr,‡ a short distance above the great city of Kerkh, the Beth Seluk of the Syrians; and this arm, it is evident from Tabarí, was the real original Kátúr; though, subsequently the two other branches were known by the same name. Below the junction of the three streams, according to Abú-l Fedá, the canal lost the name of Kátúr, and assumed that of Nahrawán.§ To the northern arm of this canal, which, in the days of Khosrau Pervíz, was certainly full of water, I accordingly conduct Heraclius, in five marches, from the lesser Záb; the intervening distance being about 80 miles.|| Any one who has seen the tremendous bed of the Kátúr, above 100 yards in breadth, will understand the disinclination of

* The name Kátúr I believe to be Arabicised from the Persian words Káu Túr, which signify the canal or excavation of Túr. Torna is probably a contraction of Túr Nahr, which has the same meaning; and we thus discover the real name of the canal in the *Duris* of Zosimus. The suffix of Nadotus employed by Pliny is probably an error for Narotus, and refers to the same word Nahr. The plain of Dura, on which Nebuchadnezzar erected the golden image, probably indicates the same locality, and the two Arabian towns of Dúr, which were to the N. and S. of the point, where the northern arm of the canal, the real original Kátúr, was derived from the Tigris, have an evident reference to this ancient name.

† With the usual confusion of the *r* and *l*, the name appears in the later geographers, under the form of Kátúl.

‡ Abú-l Fedá says, near the Kasro-l Motewekkil, commonly called El Ja'feri.

§ For accounts of this canal, see Tabarí in his notice of the building of Sâmerá; Abú-l Fedá, and Zakariyá, in their chapters on rivers; and, above all, Yákút, in the *Mo'âssid*, under the head Kátúl; also Més'ûdî's *Caliphate of Mota'hem*. [See note §, p. 97.]

|| Supposing the passage of the lesser Záb to have been about midway between its mouth and Altún Kópri, the direct distance will be a degree of latitude. Hamdu-llah gives the measurement from Kerkh to the lesser Záb, upon this line, at 22 farsakhs.

Heraclius to encounter the Persians at the bridge—in the face of an enemy it would have been quite impossible to have forced a passage—and the Emperor would have been thus obliged to abandon his design upon the capital, beyond the Torna. The Persian general, however, was afraid to oppose him; and Heraclius, doubtless, passing the Kátúr by the noble bridge, of which the remains are still visible, immediately to the N. of the ruins of Eskí Baghdád,* occupied the city, of which these ruins mark the site, and which, under its various names of Kerkh, Beít Selúk, and Beít Germá, or Bájeramá, continued to be the metropolis of all Southern Assyria, during the whole period of the Sasanian empire. It must have been with a view of attacking this great city that the Emperor was so anxious to cross the Torna; and I cannot hesitate, therefore, in recognising, in the name of Beklam, which Cedrenus applies to the city, beyond the river, a barbarous corruption of the real Syrian title of Beít Germá. The confusion of the *r* and *l* I have already often noticed; and I conceive that the klam, or Gelam of the Greeks, may be thus intended for the Arabic plural formation of Geram; the whole title of Beglam, or more properly Bá Gerám, having the same signification with the Syrian, Beít Germa, of the house or city of the Garamæans.† In support of this illustration, which the previous identification of the Kátúr and Torna, and the restoration of the barbaric Beglam, to its true orthography, would seem to render almost certain, I may further remark, that it is impossible to suppose the contemporary Syrians could have been silent on the subject of so considerable a place as Beklam must necessarily have been to have contained the magnificent palace and paradise of Khosrau, which are described by the historians of the war; and yet, that in the whole range of their copious geographical notices of this district, there is, positively, no other title to be found, which, by any species of etymological violence, can be forced into a similarity, however remote, with the corrupted name employed by the Byzantines. From Beít Germá, Heraclius

* This ruined bridge is now named Kanţarah Resási, or the leaden bridge, from the metal clamps with which the blocks of stone were fastened together, and it has further given the title of Resás to the dry bed of the Kátúr, among the Arabs of the present day. The canal, however, is more generally called by the modern Arabs, Nahr-Súsah.

† The orthography of Cedrenus is usually to be preferred to that of our present copies of Theophanes. This name is written in the MSS. of Theophanes Βικλάμ, Βικλάλι, and Βικλάλι, in all of which the last λ is certainly an error of some ancient copyist for μ. In Cedrenus we have the orthography of Βικλάμ, which I could farther restore to Βικλάμ. Βα is the common Arabic contraction for the Syrian Beít, and the name of this city was thus written in Arabic, Bá Jeramá; but were the name used to denote a people, as I suppose in this instance, the Arabic formation would be Bá Jerám. See the various reading in Goar's Theophanes, p. 534; and Assemani, tom. iv., p. 732. The Arabs in a later age corrupted the name of the Garamæans into Jerámikeli.

probably followed down the course of the Kátúr, to the ruins supposed to represent the site of Opis,* where he crossed the canal by another bridge, of which the remains are also visible, and, passing at the same place the petty stream of the 'Adheim, he must from thence have struck across the desert to the Diyáleh, along the right bank of the Khálish canal. The name of this river (the Diyáleh) is not mentioned in the Greek accounts of the campaign. Khosrau is merely described as having encamped, with a large force, at a place called Barasroth, 5 miles from Dastagerd (according to most copies of Theophanes),† where there was a river, difficult of passage, and having a narrow bridge, which was further obstructed by confined ways among the houses, and by old water-courses. The Barasroth of the Greeks I conclude to be identical with the Berázrúd of Yáqút,‡ a canal which was derived from the Diyáleh: § Khosrau was probably encamped at the mouth of the canal; and this will agree tolerably well with the indication of 5 miles' distance from the site of Deskereh, even supposing that the reading of Tamerd, which occurs in one manuscript, is not to be preferred to that of Destagerd.¶ When Khosrau fled to Ctesiphon, Heraclius advanced, and, crossing the river without opposition, occupied the palace of Bebdareh. This name is probably the Arabic Báb, a gate, in composition with some other word which I confess I do not recognise, and appears to apply to a palace on the immediate outskirts of Dastagerd. It may, perhaps, be represented by the remarkable ruins of the Zindán.¶¶ Of the identity of Dastagerd, with the Sasanian ruins

* The identification of Opis must obviously depend upon the antiquity of the Kátúr or Nahrawán excavation. From the account of Zenophon we certainly should not suppose the canal to have existed at the time of the retreat; but if it can be proved to be of an earlier age, then the Phycus will be represented by the canal rather than by the 'Adheim, and Opis must be removed from its present supposed position to near the ruins of Eski Baghdád.

† In one of the MSS. of Theophanes, the name of *Tapiēd* is employed in this passage instead of that of *Δασαγερδ*, and I suspect correctly. *Tapiēd* is of course the Oriental Tāmerreh, or Tāmerret, a name given to the Diyáleh, from a town upon its banks, the exact position of which, however, I fear cannot be ascertained, unless it be considered identical with Jallúla.

‡ See Morásido-l Ittilá', under the head Tāmerá; the name is now corrupted into Beládrúz.

§ The Barázrúd is derived from the Diyáleh, below the Hamerín hills, at a point where, in former times, was the great passage of the river. Near this Major Keppel found some Sasanian sculptures, and I have heard that there are the remains of a bridge at the same place. The town of Deskereh was watered by the Tábiñ, now the Shehribán canal, as I find from the journal of a friend who has just visited the ruins, and whose statement is confirmed by that of Yáqút, under the head Tábiñ, in the Morásido-l Ittilá'.

¶ The real distance must be about 7 or 8 miles.

¶¶ There is here a *hiatus* in the present copies of Theophanes, which, however, is supplied from an old Latin translation, by Anastasius, where we find that the Emperor did not, on this occasion, enter Dastagerd, but proceeded direct from the river to the palace of Bebdarach, merely sending a detachment to occupy the city. See the *Notæ Posteriores* in Goar's Theophanes, p. 651.

of Eski Baghdád, that were visited by Rich, there can hardly be any question.

The Arabic historians and geographers enable us to trace out this identification in the most satisfactory manner possible. Tabarí directly mentions the flight of Khosrau to Deskeretu-l Melik, a city containing a large and strong castle, and the most considerable place in all the country of 'Irák.* Jaihání again, in the eleventh century, writes of Deskeretu-l Melik, that it was a city situated among date-trees, populous, and surrounded with cultivation, and possessing a large fort, girt round with a mud wall, within the area of which there was no trace of building or habitation. Idrísí places it upon the high road into Persia, at the distance of 16 farsakhs from Baghdád; and all the other itineraries confirm this geographical position.† Yákút describes it in all his three works, the Mo'jemu-l Beldán, Moshterik, and Morási-du-l-ittilá';‡ he notices its celebrity under the Sasanians, and ascribes its foundation to Hormuz, the grandson of Ardesbír; in his day it had fallen to the condition of a mere village, and was situated, he says, "in the district of Khorásán, near the town of Shehribán." Abu-l Fedá, and many other authors, whom it is unnecessary to quote, all afford evidence of the same nature; and the only thing that is required to remove all doubt regarding its exact verification, is the discovery of some local tradition among the Arabs, which may still attach the name of Deskereh to the ruins of Eski Baghdád.§ Theophanes, in stating that the effeminate Khosrau was driven by his fears to travel 25 miles a day, and that he occupied three days in his flight from Dastagerd to Ctesiphon, appears to me distinctly to prove the interval between the two cities to have been 25 Roman miles; and the circumstantial evidence of the march of Heraclius confirms his statement, which, nevertheless, was misunderstood by his copyist Cedrenus, and which, in its supposed determination of 25 miles for the entire distance, has been a source of perplexity to modern geographers. The road distance from Eski Baghdád to Táki-Kesrá, would be, as near as possible, 70 British miles, the equivalent of 75 Roman miles. Khosrau, after his arrival at Ctesiphon, is said by Theophanes to have crossed the Tigris in his alarm, and to

* Ibu-l Athír, in the Kámil, gives the last Oriental account that I have met with of this campaign of Heraclius, and makes frequent mention of Deskeretu-l Melik.

† Jaihání's map also of 'Irákí 'Arab, gives the same emplacement to Deskereh.

‡ The name is written by the Orientals Deskereh, Deskeret, and sometimes Destekert, but these are probably mere Arabic formations of the pure Persian word Destagerd, which is the exact orthography of the Byzantines. Destekertu-l Melik is stated by Jaihání to signify the royal camp.

§ Eski Baghdád, or old Baghdád, is a name commonly given by the Arabs to ruins, of whose real history they have no tradition; and it has thus happened that the two cities of Kerkh and Deskereh are known by the same title at the present day. There are other ruins of the same name also in Kurdistan.

have taken refuge in Seleucia, which the Persians named Guedesir. This title I at once restore to its Oriental orthography of Wádí Sír, and identify with Nahr Sír,* a name of precisely the same signification which was bestowed by the Sasanians on a town of their foundation, built upon the site of Seleucia, and which continued as late as the age of Yakút, to denote the suburb of Modáin, on the right bank of the Tigris.

Heraclius, in his anxiety to put a decisive end to the war, could have allowed his army little rest, either at Beit Germa or Deskeret; for, upon the seventh day after he first pitched his camp beyond the Torna, we find him again upon the march from Dastagerd, advancing in the direction of Ctesiphon. At the end of three marches, which I estimate at 51 Roman, or about 48 British miles, he reached a point distant 24 Roman miles from Ctesiphon; the great river Arba occurring midway upon the line between that point and the city. The name of this river, which is written Arba, by Theophanes, and which, under this false orthography, has been perpetuated in the writings of D'Anville and Gibbon, I must at once restore. Cedrenus gives us the form of Narba; but, in the letter of Heraclius to the Senate, contained in the Paschal chronicle, and in the manuscript chronicle of Simeon the Logothete,† the still more perfect form of spelling is preserved of Narban, which expressed, as near as the Greek alphabet will admit, the true Oriental orthography of Nahr Wán.‡ The bed of the Nahr Wán canal, in this part of its course nearly equal to the Tigris, passes at the distance of about 11 miles to the N. of Táki Kesrá, and here, in the time of Khosrau, there was a pontoon-bridge to facilitate the communication between the two cities of Deskerah and Ctesiphon.§ Heraclius, from his camp,

* Nahr Sír is a contraction of Nahr Ardeshr, a name given to this city on its re-edification, by Ardeshr Bábegán. At the time of the Arab invasion it was one of the chief cities of Babylonia. See Ibn Athir, the Rauze-to-l Aḥbab of Atáu-llah, the famous Tárfikhi Baghdád, Yakút and Abúl-Fedá.

† Pasch. Chron. Edit. Dind., vol. i. p. 731; and vol. ii., p. 493.

‡ In all the maps hitherto published, which profess to treat of Comparative Geography, this spurious name of Arba is attached to the Diyáleh; and even the restored orthography of Narban will be liable to the same error without explanation; for, in many later geographical works, the Diyáleh is actually named the Nahr Wán. It is necessary to observe, therefore, that when the canal became blocked up, the Diyáleh, which had been before absorbed in it, continued to flow in the dry bed, from Bakúbá to the city of Nahr Wán, and on this account, assumed the name in the lower part of its course.—See Yakút's Mo'jemo-l Beldán, under the head Nahr Wán, and Ḥamdo-l lah's chapter on rivers.

§ Yakút distinguishes between the two canals of Kátúl and Nahr Wán, and attributes them to different ages. The Kaṭul he describes as the canal derived from the Tigris, in the vicinity of Sámarrá, and prolonged to the Diyáleh at Bakúbá: it was first excavated, he says, in remote antiquity, and subsequently repaired and augmented, both by Anúshíreván and Hárún al Rashíd, while the Nahr Wán was derived from the Diyáleh, at the city of Nahr Wán, and prolonged through the desert to Wasit. It was also a work of remote antiquity, and fell into ruin during the troubles in which the Khaliphate was involved on the rise of the Seljukian dynasty. I consider his authority

at the distance of 12 miles from the river, sent on to endeavour to seize the bridge, but this had been previously removed by the orders of Khosrau; and, as the Roman scouts also failed to discover any point at which the Nahr Wán was fordable, the Emperor had no resource but to abandon his attack on Ctesiphon, and retrace his steps into Persia. I conclude that he followed the route which is laid down in Idrísí; and which, conducted by the high Persian road as far as Kasri-Shírín, and from thence struck up through the modern district of Zoháb to Shehrizúr, crossing the Diyáleh by the ford of Bánákhilán. The town of Shehrizúr, named by the Byzantines, Siazur,* was situated, I have now no doubt, after examining the country, at the ruins of Yásín Teppeh, where there is an immense elevated platform, exceeding, I think, in height and extent, any of the mounds either at Babylon or Susa. He remained here until the 24th of February, as he expressly states in his letter to the Senate, and then resumed his march to Canzaca. In four marches along the high road to Canzaca, he would reach the town, usually called Báneh, at the foot of the great pass, leading across Mount Zagros, the distance being about 80 miles, and being divided into four regular menzils or stages. The proper name of this town is Berózeh,† Báneh being the title of the district; and here, accordingly, we have the representative of the Barza of Theophanes. At this place the Emperor remained seven days, according to Theophanes, employed, doubtless, in making arrangements for the passage of the mountain; and thus, as the year 628 was a bissextile, we may, without much chance of error, fix the date of his departure from Báneh, upon March 6th.‡ The remaining distance from Báneh to Takhti-Soleímán, along the direct route,

decisive, notwithstanding that the ignorant Arabs of the present day attach the name of Nahriwán to both canals; and although it is stated that a continued line of banks can be traced along the route of the Diyáleh, from the point where the ancient Kátúr joined that river at Bakúbá, to where the real Nahr Wán leaves the Diyáleh, about 18 miles above the point of its confluence with the Tigris. These banks may have been constructed to prevent inundation from the Diyáleh, after its waters were swollen by the immense stream of the Nahr Wán, and do not, in my opinion, at all prove the continuation of an artificial excavation between Bakúbá and the ruins of the town of Nahriwán.

* In the Emperor's letter *Σαγρεῖς*. See Pasch. Chron. Edit. Dindorf, vol. i., p. 732.

† The Kurds believe this word Berózeh to be a corruption of Pirúzeh, a name derived from a certain Pirúz, who founded the place, but I should rather refer the two names of Báneh and Berzeh to the Kurdish words Bán and Berz, which have both the same meaning of "high or above," and apply most aptly to the very elevated position of this mountain district.

‡ The intercalary day of the Julian year occurred between the 23rd and 24th of February; if we suppose the Emperor to have left Shehrizúr upon this day, we can allow seven clear days for the halt at Barza: if the date of departure were the true 24th after the intercalation, we must include the day of arrival in the seven days' halt of Theophanes. The difference of a single day, however, either more or less, can be of no consequence to the general argument.

by Sekiz, measures, as far as I have had means of ascertaining from the peasantry, about 106 miles; and this interval, at the average daily rate of marching, of 5 parasangs, or between 17 and 18 British miles, which appears to me to be verified, as well by the ancient authorities as in its approximate application to the recorded itineraries of the march of armies in the East, both in times ancient and modern,* could not require less than six days' march for its passage—the date of the arrival of Heraclius, at Canzaca, or Takhti-Soleimán, being thus determined, by a very simple process of calculation, to be March the 11th, which exactly coincides with the statement in the Emperor's letter to the Senate—that, upon the 7th of April he had been already twenty-seven days encamped at Canzaca. I consider this march of Heraclius, from Shehrizúr, by the Báneh pass, to Canzaca, to corroborate, in a most remarkable way, the evidence which I have before adduced, of the identity of that city with Takhti-Soleimán: but there are also some other points of information contained in the Emperor's letter, which are worthy of being noticed, as they serve still further to strengthen the argument.

The pass of Báneh, I must observe, is the only point at which the mountain range of Zagros can be crossed after the autumn upon the road conducting from Shehrizúr into Media;† and there can be thus no doubt whatever as to its representing the passage of Mount Zara, mentioned by Heraclius.‡ But after a few falls of snow this defile also becomes impassable; and all communication, except by foot travellers, is cut off between the eastern and western faces of the mountain. In the year of the Emperor's visit the winter appears to have set in remarkably late. The first fall of snow, indeed, as he himself mentions, did not take place until the 24th of February; and he was thus able to

* Five ancient parasangs, or 150 Olympic stadia, are equal to $18\frac{1}{2}$ Roman miles, or nearly 17½ British, and this I have usually found rather below than above the average daily rate of marching in Persia, both of ancient and modern armies; however, I consider any systematic estimate for the measurement of a day's march, a most deceptive means of analysis, and to be avoided as much as possible in the illustration of Comparative Geography.

† Rich's Pass, named Garrán; the Naakhán Pass, conducting from Penjwin to Merián, midway between Garrán and Báneh; and the Kortek Pass, leading into Sardesht, are all blocked by the snow very early in the season; and these are the only lines which cross the range between the Gates of Zagros, at Táki-Gerráh, and the Keli-Shín of Ushnef.

‡ In all the maps the name of Daroo is applied to these mountains, which, being the usual Kurdish contraction of Dárá Kúh, and the *d* and *z* being constantly confounded in Kurdish, certainly appears identical with the Zara of Heraclius. There is, however, no such name at present known in the country. Every hill in this part of Zagros has some particular title; and the mountain above Báneh is named Khán, from a ruined khán, or caravanserai, in the pass; and sometimes Gird Kúh, from an old fort of this title, said to contain sculptures and inscriptions, on the summit of the range. I refer all these names of Zara, Dálá Hú, or Dálá Kúh above Zoháb, and perhaps even Zagros, to an original title of Dárá Kúh, signifying, like Sháhú, "the royal mountain."

cross the mountains while the pass still remained open. Afterwards, however, he says it continued to snow uninterruptedly until the end of March; and the messengers, accordingly, whom he had dispatched on the 25th of the month, to treat with Siroes, found themselves unable to cross the range. The messengers left Canzaca on the 25th of March, and in four regular caravan marches, doubtless, reached the village of Mírideh, at the eastern foot of the pass. Beyond this, however, they were unable to proceed, the pass being blocked up by snow. At the same time they learned that another party, sent by Siroes, was also detained upon the western side of the mountain with dispatches for the Emperor, and, deeming the intelligence of moment, they immediately sent back a courier to Canzaca. The man who conveyed the tidings of course travelled with expedition, and may be supposed to have performed the journey between Mírideh and Takhti-Soleimán, a distance of about 23 farsakhs, in two days. The Emperor thus writes that he received the news on the 30th of March, the sixth day after the departure of the messengers; and this circumstance alone, while it applies sufficiently well to Takhti-Soleimán, is at the same time quite sufficient to disprove the possibility of Canzaca being represented by any position so far removed from the Báneh pass as the modern town of Tabríz.

The Emperor on his march from the Báneh pass by Sekiz to Takhti-Soleimán must have passed the immediate vicinity of the Mithraic caves of Kereftú. It is only natural to suppose that he inspected these singular excavations; and the inscription upon the lintel of a doorway in the upper range of caves may possibly be ascribed to his visit upon this occasion. Sir R. K. Porter has given a copy of this inscription in his travels; but though he thought he detected the name of Heraclius, he did not attempt to draw any geographical inference from the fact.* I also annex a copy taken with great care by myself upon the spot; and while I confess myself unable to glean from it anything but perhaps the bare name of the Emperor, I still trust that its restoration, by some experienced archeologist, may throw a further light upon the interesting period to which I refer it:—



Inscription at the caves of Kereftú.

* Colonel Leake, to whom the original copy has been referred, says, "I have not been able to decipher the first line of the inscription of Kereftú beyond its first word, ΗΡΑΚΛΗΣ—Hercules; but this, together with the second line, which appears to be ΜΗΦΕΝΥ Σ ΕΧΘΟΚΑΚΟΝ Η, shows that the place was under the protection of Hercules, 'that no scoffer might enter, nor any evil.' Possibly the two lines may have been

But in this digression, to which I have been led in tracing the campaigns of Heraclius, I have almost lost sight of the subject of the fire-temple that I was engaged in illustrating. Heraclius, in his first visit to Canzaca, is said to have wholly destroyed the temple and the city; but that this could not have been the case is evident from his own letter, where he writes, that upon his second visit he found the district populous and well supplied; and that, pitching his camp on the immediate outskirts of the town, he took possession of the place, which was "sufficiently commodious, and contained about 3000 houses," in which he directed the soldiers to shelter their horses against the inclemency of the season. These 3000 houses doubtless formed the town, of which the remains are to be seen along the bank of the little stream in the valley below the hill. The fort upon the summit of the hill probably only contained the palace, the temple, and the dependent buildings, and, as I shall hereafter show, was always considered distinct from the city. Heraclius, upon the 8th of April, having concluded a treaty with Siroes, broke up his camp from Canzaca. In the words of Gibbon, "His return to Constantinople was a perpetual triumph; and after the exploits of six glorious campaigns, he peaceably enjoyed the sabbath of his toils." I shall now briefly finish what more I have to say on the subject of the temple. Hamdu-llah Mustaufi gives us one measurement which is of importance to verify the evidence that I have before brought forward in proof of the identity of this temple with that which is usually termed by the Orientals the fire-temple of Azerbiján. "Shehrizúr," he says, "is exactly half way between Modáin (or Ctesiphon) and the great temple of Azerbiján." Now that this is a measurement derived from some ancient authority, and therefore entitled to the more respect, is evident from the line being drawn from Modáin, a city which fell into ruin immediately on the establishment of the Mohammedan power, and was thus devoid of any geographical consequence to the Arabs. Had it been a measurement of the Arabian geographers the line would certainly have been drawn from Baghdád. Shehrizúr, as I have shown in tracing the march of Heraclius, is upon the direct line which connects Ctesiphon with Takhti-Soleimán. The distance given by Idrisi, from Baghdád to Shehrizúr, is 176 miles;* from Ctesiphon the distance would be about 10 or

verses: the form of the character belongs to the fourth or third century before Christ. The Macedonian kings, having derived their origin from Hercules, carried his worship into Asia, where he was identified with the Sun. Strabo informs us that the Macedonian princes resided at Ecbatana. No wonder therefore that an inscription of their time should be found in the vicinity."

* I have also travelled over the greater part of this line myself, and my own estimate corresponds with that of Idrisi. The distance from Soleimáníyeh to Baghdád, by the Seghermeh Pass, is estimated at 60 hours, or 180 miles; and this must have a trifling excess over the route to the same place, from Shehrizúr by Zoháb.

12 miles longer; and the measurement of this half of the line will thus be determined at something under 190 miles. Assuming the city of Shehrizúr to have been situated at Yásín Teppéh, which, from the appearance of the ruins, I cannot doubt, I can then give the estimated distance from that place to Mírideh, from my own road-book, to be 96 miles. From Mírideh, by Sekiz, to Tikán Teppéh, it is reckoned 18 farsakhs, or about 70 miles; and from Tikán Teppéh to the Takht I found to be 20 miles.* These three distances added together give 186 miles for the entire distance from Shehrizúr to Takhti-Soleimán; and as this measurement corresponds exactly with the other half of the line between Shehrizúr and Modáin, I think we may consider the question of the identification of the temple of Azerbáján, with the great Pyræum of Canzaca or Shíz, as finally and indisputably settled.

I have supposed that the sacred fire was restored to the temple when peace was re-established between the empires of Rome and Persia; but we cannot expect any notice of this event in so confused a period of the Persian annals. Shortly afterwards, when the Arabs invaded Persia, and the progress of their arms was duly registered, with religious care, we might have hoped to have found a notice of Canzaca among the other coeval cities of the empire, of which the capture is circumstantially recorded; but the forces under Somákand Bekír that were destined to attack Azerbáján travelled by the route of Hamadán and Zenján; and in the pacification of the province, which almost immediately succeeded, Canzaca, the capital, would seem to have altogether escaped the hostile visit of an Arab army. I have failed, at any rate, to discover a notice of Shíz, or indeed of any other city of Azerbáján Proper, during this period of history, which affords so much geographical illustration of the other provinces of Persia; † and it is only on this negative evidence, of no other city having arisen to usurp its place, that I conclude Canzaca to have retained its metropolitan character during the first two centuries of Islám, and to have then first yielded to the rising greatness of Marághah, which continued from that period till the invasion of the Moghuls, to be considered as the capital of the province. The Jacobite

* This part of the line is very circuitous: a great detour is first made to the N. to cross the mountains by the pass leading from Báneh to Mírideh: beyond that village it follows down the défile in the same direction until the mountains are fairly cleared, and then the road makes a sweep to the S., through Sekiz, to avoid the impracticable country upon the direct line along the Jaghatú and Sárúk. It is necessary to explain this; for the map distance from Báneh to Takhti-Soleimán is only 67 miles.

† Ibn A'thim, who chronicled the Arab wars, in which he was himself a sharer, does not even notice the Azerbáján campaign. Tabari gives the best account of it that I have met with; but he has no names in Persian Azerbáján. I shall hereafter show that a certain Mohammed Ibn 'Abdu-l Wahíd is said to have conquered Azerbáján, and to have established his provincial court in this very city of Shíz, though to what precise period of history the event refers I am, I confess, in ignorance. See p. 140.

primate of the East is said to have first appointed a Christian bishop of *Azerbījān*, in the year of our Lord 630;* and we also find that Maranan, the metropolitan of *Adiabene*, at the beginning of the ninth century, withdrew a large part of *Kurdistan* from the ecclesiastical jurisdiction of *Azerbījān*,† and annexed it to the bishopric of *Salak*;‡ but where the Christian bishop of *Azerbījān* resided does not appear in any of the Syrian authors quoted by *Assemani*; and we thus lose the only clue that we could hope for to determine positively the capital of the province during the first ages of *Islām*.

Asma'ī, who wrote under *Hārūn al Rashīd* about the time of the Mohammedan re-edification of *Tabriz*, describes the fire-temple of *Shīz* as remaining uninjured to his day. The travels of *Mosa'ēr* took place some twenty or thirty years after the era of *Asma'ī*; and the city and temple at that time still preserved their consequence; and this date (about A.D. 825) is, I believe, the latest that can be assigned in history to the *Pyraum* of *Azerbījān*. In the succeeding century the Mohammedan religion gradually superseded the fire-worship in all parts of *Persia* with the exception of *Fārs*, *Sīstān*, and the *Caspian* provinces; and to this period we must refer the ruin and desolation of the ancient temple; for *Ṭabarī*, who finished his great history in A.D. 914, emphatically declares that in his day the temple was no longer in existence. The present appearance of the ruined edifice within the fortress of *Takhti-Soleimān*, which I conceive to mark its site, I have already described in the preceding Memoir.

In connexion with the temple, I have now only to consider the name of *Ažerekhsh*, which is applied to it by the anonymous author quoted in *Zakarīyā*. *Ažerekhsh*, in the dictionaries, is explained as the ninth day of the month *Ažer*, on which a great festival was held by the ancient Persians; but this signification being unsatisfactory, I turn to another formation of the word *Aderekhsh*, or *Derekhsh*, which, in the *Ferhengi-Reshīdī*,§ is expressly said to be identical with the Arabic orthography of *Ažerekhsh*. *Aderekhsh* is merely explained by "lightning and thunder;" but *Derekhsh*, besides this signification, has the more general meaning assigned to it, of "flashing, gleaming, glittering, &c.," which is employed in *Persia* at the present day. In the *Ferhengi-Jehāngīrī*, the *Ferhengi-Reshīdī*, and the *Borhāni-*

* *Greg. Bar. Heb.*, quoted by *Assemani*, tom. ii.; *De Syr. Monoph.*, under the head *Harnua*.

† *Assemani*, tom. iii. p. 484.

‡ *Salak* was the name applied by the Syrians to the Kurdish mountains between *Media* and *Assyria*. See page 73.

§ The MS. which I quote under this name is without a title; but I believe it to be the *Ferhengi-Reshīdī*.

Kâti', Derekhsh is also given as the name of a fire-temple in Arminiye, founded by the Râs Majûsî, or chief of the Magi, a title that would seem to indicate the prophet Zoroaster, but which, by some extraordinary confusion of Oriental tradition, is supposed by the lexicographers to apply to a certain Jew of Baghdâd, also denominated Raso-l Baghal, or the mule's head.* The name of the place which contained the temple of Derekhsh is read by Hyde, Urumiyah;† but in all the lexicons that I have consulted, it appears under the form of Arminiye; and that this is the true orthography of the dictionaries is evident, from the Borhâni-Kâti', where Arminiye occurs in its proper alphabetical place, with the same story attached to it, of the temple founded by the Râs-Majûsî. At the same time this word, Arminiye, though written nearly in the same way as the Oriental title for Armenia,‡ cannot be supposed to refer to that province; for the Borhâni-Kâti', in the passage above noticed, describes it as "a well-known city, which contained the fire-temple of Derekhsh;" and adds that "the cities of Arminiye and Shîrâz, and the fire-temple of Derekhsh, were said to have been founded by the Râs Majûsî."§

The perplexity which will at once be seen attaches to these notices of the temple to Derekhsh might be cleared up, I have no doubt, by a careful reference to all existing authorities. As the works that I could wish for, however, are not here accessible to my research, I can only illustrate the subject conjecturally.

The notices contained in the Persian lexicons relative to the antiquities of the fire-worship may, I think, be uniformly traced to the Ferhengi-Jehângîrî, which was published in India at the commencement of the seventeenth century by the Ibn Fekhrô-l-dîn-Anjû, and the information of which upon that subject, derived from the ignorant Pârsî priests of the time, is certainly not entitled to the respect which is usually paid to it. Regarding the seven fire-temples of Persia in particular, the statement of the Ferheng is a mass of fable, the evident fabrication of the Pârsîs of India; and the erroneous identification of Tabrîz with the city of Aderbâdegân, which contained the great Pyraum of that name, I attribute to the same spurious source. But still, as few traditions are so false but that some glimmerings of truth may be drawn from them, I thus recognise, in the story of the Armenian

* Can this strange connexion of the Râso-l Baghal and the fire-temple of Derekhsh have originated in a tradition of Cyrus or Kei Khosrau, whom we know to have been called the Mule?

† See Rel-Vet. Pers., p. 104, where Hyde quotes from the Jehângîrî.

‡ The province of Armenia is usually written Arminiye, with two long ſ's.

§ I conclude that the author of the Borhâni-Kâti' gives this name on the authority of the Ferhengi Jehângîrî, under the head Derekhsh, copying the orthography of Arminiye, which he found in that passage.

temple of Derekhsh a reference to the subject which I am now discussing. Canzaca was for a long period of time really included in the government of Armenia. The very name, indeed, is an Armenian modification of the true Persian title; and thus arose probably a connexion between Armenia and Shíz, which was perpetuated among the Pársís by the supposed authority of the Zend A'vestá;* but the author of the Ferheng must at the same time have been aware that it could not be the province of Armenia which the chief of the Magi, or Zoroaster, was said to have founded; and he appears therefore to have supposed a town of that name to resolve all difficulties. I cannot doubt, however, but that there are further indications in works to which I have not access, confirming the identity of this temple of Derekhsh with the Azerekhsh of Zakariyá; for Hyde, supposing the name Arminiye'h to refer to Urumiyah, places the temple in the Kurdish mountains; and Richardson even more explicitly describes Derekhsh as the name of a fire-temple in Kurdistán. In the next place, without any hesitation, I restore to its true orthography of Shíz the name, which, under the popular form of Shiráz, is united with that of Arminiye'h and Derekhsh, and ascribed to the prophet Zoroaster. This error I suppose to have arisen from Ibn Fekhro-l-dín himself, whose learning did not enable him to elucidate the obscure name of Shíz, that he must have found in some Persian or Arabic authority, and who accordingly took upon himself to change it to the more familiar orthography of Shiráz. The connexion of the three names, and their foundation being attributed to the chief of the Magi, fully bears me out, I think, in this amendment, particularly when we consider that Shiráz is a modern town, founded since the establishment of Islám; that there are no traditions whatever extant, except this solitary passage, to connect it in any way with Zoroaster, or the origin of the Magian worship; and that, in describing the Persian capital of Shiráz, the Borháni-Káti', and the Ferhengi-Jehángíri, do not venture to repeat the tale of the Rás Majúsi, though under the two other heads of Arminiye'h and Derekhsh the story is detailed at length.† I thus consider the statement of the Borháni-Káti' as referring directly to the temple of Azerekhsh, in the Armenian city of Shíz; and thus confirming the prevalence of the tradition which ascribed the temple to Zoroaster. When the name of Azerekhsh was first assumed, it is, of course impossible to de-

* The Airyamán of the Zend A'vestá, which is connected with Airyana, as the special object of the care of Ormazd, is uniformly rendered in the Pehlevi by Frmán, and supposed by the Pársi priests to refer to Armenia. See page 138, where I endeavour to attach these names to the ancient title of the province of Azerbáiján.

† In the Borháni-Káti', under both heads in the Jehángíri and Reshídi, only under that of Derekhsh

cide. It may have been derived either from the eternal gleaming of the fire, or from the lightning-flash that is supposed to have first kindled the flame, and the name, no doubt, continued to attach to the temple until the edifice was finally ruined.

Having now concluded the evidence which, in illustrating the subject of the fire-temple of *Azerbāijān*, helps to establish the identity of *Canzaca* and *Shíz*, I should, properly, pursue the history of the Sasanian capital in its ascending series to the Roman ages; but before I quit the Oriental part of the inquiry, and turn back once more to the classics, I am anxious to give some extracts that throw a further light upon the application to the city of the territorial title of *Azerbāijān*, and also to make a few remarks upon the pretended verification of Saint Martin, which would place this city of *Canzaca* in the modern position of *Tabriz*.

I commence, then, with *Zakariyá*, whose valuable extract regarding the city of *Shíz* has already been of so much assistance. In his other work, entitled the '*Ajáibo-l Makhluqát*, he writes, under the head of *Nehri Azerbāijān*, that, "according to *Abúl Kasamo-l Jeihání*,* author of the *Mesalik wal Memálíko-sh Sherkiyeh*, there is a river in *Azerbāijān*, of which the waters congeal into hard stones of various sizes, and the author," he adds, "of the *Tohfeto-l Gheráib* writes of the same river of *Azerbāijān*, that the water, as it flows forth, becomes solid stone, and forms smooth and polished rocks." There can be no doubt, I suppose, that this description applies to the *Sárúk*, and its title of the river of *Azerbāijān* is therefore somewhat curious. Another Persian manuscript in my possession, the anonymous author of which usually follows *Zakariyá*, has a longer description of the same river, and clearly marks the allusion to the *Jaghatú* and its tributary the *Sárúk*. "The river of *Azerbāijān*," it is stated, "rises in the mountains of the same name, and empties itself into the sea of *Tezúch*.† The waters are pleasant to the taste. In several places canals are derived from the river to irrigate the neighbouring lands, and these water-courses, as they intersect the country, presently congeal into a fine stone which they call marble, and appear like smooth polished rocks."

All that I propose from these extracts is to show that the river which rises at *Takhti Soleimán* was sometimes called the *Nahr-Azerbāijān*, and to infer that, as the name of the *Sárúk* was derived from the *Moghul* appellation which was given to that city, so

* This is the famous *Jeihání* whom I so often quote, and whose work I believe to have been translated by Sir W. Ouseley, under the title of "*Ibn Haúkal's Geography*." In my MS. *Ishkáló-l 'Alem* his name is written *Abúl Kásim* instead of *Abúl Kásam*, which is the orthography uniformly employed by *Zakariyá* in his quotations.

† The lake of *Urúmiyah*, so called from the village of *Tezúchat*, its northern extremity. The name is sometimes written *Tezúj*.

also the *Nahri-Azerbáiján*, in all probability, owed its name to a more ancient designation of the same place; but whether the city of *Azerbáiján* received its title direct from the province and imparted it to the temple, or the temple first assumed the name and then gave it to the city, is, I think, a matter of very little consequence.

The author of the *Ferhengi Jehángíri* states explicitly that the name of *Aderbádagán*, the *Pársi* formation of the *Azerbáiján*, was applied indifferently to the province, the city, and the temple; and I think, that in the course of my inquiry I have produced abundance of evidence to verify his statement. His reference, however, of this city and temple to the modern emplacement of *Tabriz*, I directly pronounce to be altogether inadmissible; and had not the identification happened to coincide with the results of Saint Martin's Armenian researches, I should scarcely have thought that it required to be disproved. It is an old saying, that the establishment of truth involves the refutation of error; and thus every argument that I have brought forward in favour of the verification of the Sasanian *Canzaca*, at the ruins of the *Takhti Soleimán*, applies with equal force against the possibility of that city being represented by the modern *Tabriz*; but still, as the high place which Saint Martin deservedly holds among the Orientalists of Europe demands more than a mere negative refutation of his authority, I shall briefly consider the grounds upon which his opinion was formed, and endeavour either to explain or disprove them.

Saint Martin asserts that the city of *Tabriz* is frequently mentioned in the Armenian histories under the title of *Kandsag*, and that, to distinguish it from another city of the same name to the north of the *Arras*, it was named particularly *Kandsag Shahasdan*, the *Royal Kandsag*, and *Kandsag Aderbadagan*, or *Kandsag of Azerbáiján*.* Upon so interesting a point of comparative geography it would have been desirable that he should have quoted all his authorities. Not having done this, however, I can only follow him in the three solitary notices of *Kandsag*, which appear in his work on Armenia. The first of these is in the geography which bears the name of *Moses of Chorene*, but which is now generally assigned to a writer of the ninth century. It is there merely said that *Media* contains many cities, among which is *Kandsag Shahasdan*,† a statement from which nothing whatever is to be derived as to the identification of *Kandsag* with *Tabriz* or any other place.

Another notice occurs in the geography of *Vartan*, which was written about the beginning of the fourteenth century, to illus-

* Saint Martin's *Armenia*, tom. i. p. 129.

† Tom. ii. p. 371.

trate the more ancient work that I have before spoken of; and here, certainly, there would appear some grounds for Saint Martin's identification. "Adrabadagan," it is stated, "and Kandsag Shahasdan form the country of Tavrezh (or Tabriz):" and again, Heraclius is said to have regained the true cross from the Persians, which had been guarded for six years at Tabriz,* and to have carried it from thence to Constantinople; but still this authority is anything but conclusive. Kandsag Shahasdan is said to have been the country of Tabriz, not the city of that name; and perhaps the same explanation may be given of the detention of the true cross, and of the march of Heraclius from Tabriz to Constantinople. Again, the foundation of the city of Tabriz is ascribed in the same work of Vartan to an epoch which will not at all apply to the well-established antiquity of Gaza or Canzaca; and lastly, even if the geography of Vartan did distinctly state the identity of Kandsag and Tabriz, surely no great weight can be attached to a writer whose ignorance led him to confound the passes of Dariyel and Derbend, to identify Susa and Isfahán, to transport a province from the eastern extremity of Armenia to the position of Tiflis, to suppose that Sardanapalus was defeated by Arbaces at Ecbatana, and to commit a multitude of similar errors, historical and geographical, which it has required all the skill and learning of his editor to rectify and explain.

The third notice of Kandsag occurs in the anonymous itinerary that is translated by Saint Martin,† conducting from the Armenian capital of Tovin to all the great cities of the East. Here Kandsag Shahasdan is placed between Nakhchuván or Nakhshiván and Dispon or Ctesiphon, at the distance of 120 miles from the former and 370 from the latter; and again, Kandsag is said to be 100 miles distant from Niniveh.

By determining the age of this itinerary we can alone distinguish whether the name Kandsag applies to Shíz or to Tabriz; for the measurements, faulty in the extreme, suit one position equally as well as the other. Thus if the distance of 120 miles from Nakhshiván appears to indicate Tabriz, the measurement of 370 miles between Kandsag and Ctesiphon applies with equal accuracy to Shíz,‡ and the distance from Niniveh will require to be more than doubled before it will suit either one position or the other. These are the only points of evidence, as far as I can follow Saint Martin, upon which he has grounded his opinion of the identity of Canzaca and Tabriz. They are, I think it will be admitted, inconclusive enough, and altogether powerless against my arguments in favour of Takhti-Soleimán. I believe, how-

* Tom. ii. pp. 423-425.

† Tom. ii. p. 396.

‡ See p. 37, where I have calculated the distance from Modáin to Takhti-Soleimán at 372 miles. From Modáin to Tabriz must be above 500 miles.

ever, that, putting aside the true identification, I can show further reasons for the impossibility of Canzaca being represented by Tabríz.

Tabríz, the Armenian Tavrezh, was supposed, by the tradition of the country, to have been founded by Khosrau, the father of the great Tiridates, in commemoration of his successful foray into Persia to avenge upon Ardeshr, the founder of the Sasanian dynasty, the murder of his relative Ardován.* The name signifies, in Armenian, revenge, and under this title the place is uniformly mentioned in the history of Faustus of Byzantium,† an author who wrote at the end of the fourth century of Christ, when we know, from the contemporary Greeks and Latins, that the capital of Azerbiján was called Canzaca. Perhaps it may be thought that Faustus of Byzantium, in employing the exact orthography of Tavrezh, which signifies revenge, confirms the tradition relative to the foundation of the city by Khosrau; and as he lived only a century and a half after that era, this would be determinative against the antiquity of the site; but it is, on the other hand, possible that the pretended etymology may have been a fabrication of aftertimes, and I do not therefore lay any stress on his authority, further than as it seems to prove that, in that early age, when the two towns of Kandsag and Tabríz were both in existence, the Armenian historians clearly distinguished between them. According to all the Persian and Arabic geographers Tabríz was founded by Zobeideh, the wife of Hárúnu-l Rashíd, in the second century of Islám;‡ and as the Orientals are most particular in defining the antiquity of their cities, and rarely or ever ascribe an ancient site to a more recent era than it can really claim, I consider the prevalence of this opinion as quite destructive of the possibility of Tabríz representing the Median capital. The Canzaca of the Byzantines, which Heraclius left in A.D. 629, the metropolis of Azerbiján, must necessarily have retained its metropolitan character in A.D. 642, when the Arabs invaded the province; and it is impossible to understand how, if at that time Tabríz, under its own proper title, had really represented this city, the name which rose afterwards to such celebrity in the East should not be found in the historical records of the campaign. With Shíz the case was different; the city did not lie upon the line of march, and thus escaped the observation of the contemporary annalists; and when

* See Saint Martin, tom. i. p. 130, and tom. ii. p. 423; also Avdall's Armenia, vol. i. p. 155.

† He was an Armenian native of Byzantium, and is believed to have written his original history in Greek, of which the Armenian version only is now extant. For his notices of Tavrezh, see Saint Martin, tom. i. p. 130, note 1.

‡ A.D. 791. The original town of the Arsacidan Khosrau had been destroyed, I conceive, in the desolating wars which the Sasanian monarchs waged against Armenia.

in after ages the spirit of inquiry attracted the notice of the literary Arabs to its interesting site, it had mouldered too long in ruin to enable them to reveal its ancient glory. Marághah is said to have been founded by Merwán, the general of the Khaliph Hisham,* in his expedition against Derbend about A.D. 740, and as it gradually rose into consequence, Canzaca must have declined before it. Between this period and the end of the eighth century I place the era of the geography ascribed to Moses of Chorene, which still names Kandsag Shahasdan as the chief city of Azerbījān. Tabríz must have been then a petty town, for it had not yet been re-edified by Zobeideh. It was familiar, however, to the Armenians under its own proper title, and if the Armenian geographer had intended to allude to it, I can see no reason for his employing a name different from that which had been used by Faustus of Byzantium. Tabríz was rebuilt about the close of the eighth century, but it long continued of too unimportant a character to attract the notice of the historians and geographers. Thus neither Asma'í, nor Mosa'er, nor Tabarí, nor even Mes'údí, who all mention Shíz as the great city of Azerbījān, make any allusion to Tabríz. In the tenth century it appears first to have risen to the consideration of a town, secondary, however, to the capital Marághah. Ibn Haukel, according to Abúl Fedá, says, that in his time (about A.D. 990) Tabríz was nearly equal in size to Khóí; and Jeihání, who wrote shortly afterwards, places it in the same class with Deh Khwárkh, Deh Kherkán, Khóí, Selmás, and Merend.† In the succeeding century it was destroyed by an earthquake and rebuilt. It is mentioned in the campaigns of Toghrul Beg, both by the Greeks and Orientals,‡ and from that period it continued to rise in consequence, until, in the thirteenth century, Holákú made it, for the first time, the seat of the empire. After it became the metropolis of the Moghul sovereigns, the Armenians attached to it the epithet of Shahasdan or Royal,§ in the same way as they had formerly applied the title to Kandsag; and from this circumstance, as well as from its having succeeded to the metropolitan character of the ancient city, it is not impossible that the ignorant Armenians, who were quite unable to penetrate the gloom in which the fate of the real Canzaca was involved, adopted a belief in their identity. I have only further to remark that there is not a single vestige of antiquity at Tabríz which can be assigned to

* See Abúl Fedá under the head Marághah.

† Sir W. Ouseley (*Travels in Persia*, vol. iii. p. 412) has remarked many of these circumstances, which seem to disprove the antiquity of Tabríz, but he does not venture to offer any decided opinion on the subject.

‡ See Cedrenus, vol. ii. p. 770, and all the Oriental accounts of the Seljukian invasion of Armenia.

§ See Saint Martin, tom. ii. pp. 6-153.

any higher date than that of the Moghul sovereigns, and that, with the exception of the solitary notice in the *Ferhengi-Jehán-girí*, which I trace to the very doubtful authority of the Median *Pársís*, I have never met with a single passage in Oriental works, prolific as they usually are in tales and legends of the olden time, that would pretend to include *Tabríz* among the ancient cities of the empire. All this appears to me quite conclusive against the possible identity of *Canzaca* and *Tabríz*; and when the evidence which I have brought forward in favour of *Shíz* is further taken into account, I believe the most prejudiced theorist will feel himself obliged to abandon the position of Saint Martin.

Having now, as I hope, satisfactorily verified the position of the Arabian *Shíz*, at the ruins of *Takhti-Soleimán*, and having demonstrated the identity of that city with the Sasanian capital of *Canzaca*, I shall endeavour to trace up the fortunes of the city into an age less accessible to direct inquiry.

The notice of *Procopius* describes the city as the capital of *Azerbáján*, in the middle of the sixth century. Two centuries earlier, at the time of the invasion of *Julian*, *Ammianus Marcellinus* also names *Canzaca* as one of the most considerable cities of *Media*.* We must next ascend to the time of the Armenian *Tiridates*, in about A.D. 297.

This monarch, the first Christian king of Armenia, was engaged in a long and arduous war with *Narses* of Persia, the seventh king of the Sasanian line.† Expelled from his country, he took refuge in the court of the emperors, and he steadfastly adhered to their alliance throughout the war which soon followed between *Narses* and *Diocletian*. When the Roman arms, accordingly, compelled the Persian monarch to purchase a disgraceful peace by the cession of many large and fruitful provinces, the fidelity of *Tiridates* was rewarded by the annexation of the important country of *Atropatene* to his paternal kingdom of Armenia.

Peter the Patrician, who records the negotiation of the treaty, states, that the limits of Armenia were extended as far as the fortress of *Sintha*, in *Media*,‡ by which I understand that *Azerbáján Proper*, terminating in the natural boundary of the Kurdish mountains, was alone severed from the dominion of Persia, the name of *Sintha* being preserved in the title of *Síná*, which applies to these mountains in the middle ages; and which is now further corrupted to the modern pronunciation of *Sehneh*. I have now to quote the most important authority that we possess for the establishment of a connexion between *Canzaca* and the Median

* Lib. xxiii. cap. 6.

† For this period of history see the 13th chapter of *Gibbon*.

‡ In the *Excerpta Legationum*, p. 30.

Ecbatana. Moses, of Chorene, who wrote his Armenian history about A.D. 445, states, that Tiridates, visiting his newly-acquired territory of *Azerbījān*, "repaired the fortifications of the place, which was named the second Ecbatana, or the seven-walled city, and leaving there his own officers, returned into Armenia."* This allusion can only refer to the capital of the province, a place which, sixty-five years after the visit of the Armenian monarch, Ammianus names *Gazaca*; and which, from the evidence of Stephen of Byzantium, who quotes two writers of the second century, it is evident also possessed that name long anterior to the age of Tiridates. We have thus direct testimony that the city, which from the second to the fourth century was known in the country by the vernacular title of *Kandsag*, or *Canzaca*, sometimes during that period assumed its more ancient appellation of the second Ecbatana, or the seven-walled city; and, I believe, also, that the identity of name, and the very marked and peculiar epithet of "the seven-walled," which it is quite impossible to suppose could have belonged to two different cities, are sufficient to warrant my connecting the notices of Moses of Chorene and Herodotus; and asserting, that their exact coincidence of name, description, and geographical indication, can only be explained by a reference to the same place.

Ascending from the time of Tiridates, at an interval of about 70 years, we come to the age of *Ardeshr Bábegán*, the founder of the Sasanian dynasty; who, as I have already shown, from George of Pisidia, must have re-edified the city of *Canzaca*. The fortifications which he built "in a strong place, and after the fashion of a lofty tower," I conclude to have been ruined in the rapid succession of devastating wars between Persia and Armenia, which occurred during the following reigns; they were repaired by Tiridates, and are doubtless the same massive walls which are still to be seen in their ruin encircling the mount of *Takhti-Soleimán*. The epithet of the seven-walled city I believe to have been retained from the fabulous ages of antiquity, as I shall explain in my remarks upon Herodotus, and to have had no connexion whatever with the fortifications of *Ardeshr* and *Tiridates*; which, as far as I have been able to form an opinion, never exceeded one single line of defence. I have found no corroboration of George of Pisidia, in Oriental history; indeed, *Ibn-i Athir* is the only author that I know, who describes the campaigns of *Ardeshr*, in Armenia, and *Azerbījān*;† and his account is altogether devoid of historical or geographical detail.

I have now reached the era of the Parthian empire, when the

* Lib. ii. c. 84.

† *Tabarí*, *Ibn Jauzí* and others, mention the name of *Azerbījān*, but without any detail whatever, and the Armenian accounts are confined to their own country.

province of Media Atropatene, or Media alone, as it is usually called by the contemporary historians of Rome (the ancient and general title having been retained only by this particular division of the province), formed a distinct and powerful kingdom; sometimes bestowed by the Parthian monarch on his nearest relative, as the first place of importance under him; but more frequently governed by its own hereditary line of sovereigns, descended from Atropates the Satrap, whose interests as often led them to oppose as to support the lord paramount of the feudal empire.* All the Greek and Latin accounts of this period, as far as they regard the capital of Media Atropatene, require the mutual illustration of each other; and I shall make no apology, therefore, for considering them as a distinct body of evidence, and collating their various statements, without any reference to the chronological order of the authorities.

I consider, then, that the various names of Phraata, Praaspa, Vera, Gaza, and Gazaca, that occur during this period of history, refer to one and the same city; which city, as the capital of the province, I am certainly justified in assuming to be the same that I have already traced up under the title of Gazaca, to an age immediately succeeding the destruction of the Parthian empire. The proof of both of these points will appear from a comparison of the authorities. In the account of Antony's famous expedition into Media Atropatene, Plutarch and Appian both name the city Phraata.† It is described by the former as "the large city of Phraata, the residence of the king of Media's wives and children." Dion Cassius, in his narrative of the same eventful war, gives it the title of Praaspa; he calls it the capital of the Medes, and notices the strong walls with which it was surrounded. Strabo again writes,‡ "The summer residence of the kings of Media Atropatene is at Gaza, a city situated in a plain, and in a strong fort, named Vera, which was besieged by Marc Antony in his Parthian war. It is 2400 stadia distant from the Araxes, "the river which separates Atropatene from Armenia." A doubt has been raised as to whether Strabo alludes in this passage to one or two places under the names of Gaza and Vera;§ but the whole

* Tac. Ann. lib. xv., c. 2, 31.

† Throughout this inquiry. See Plutarch's Life of Antony; Dion Cassius, lib. xlix., c. 25-31; Appian., pp. 158-168; and Florus, lib. iv., c. 10.

‡ Lib. xi., c. 18.

§ Almost all modern geographers have supposed a distinction; D'Anville places Gaza at Tabriz; and Vera between Sultāniyeh and Kazvin.—Anc. Geog., tom. ii., p. 234. Mons. Barbié de Bocage (Exam. Crit. des Hist. D'Alex., p. 817) approves of the identification of Gaza with Tabriz; and Rennell, in his map prefixed to the retreat of the 10,000, follows the authority of D'Anville regarding the emplacement of Phraata. Mr. Williams (Ancient Asia, p. 53) places Vera and Phraata at Sultāniyeh and Abher supposes most strangely that Gaza merely signifies a treasury, and has no reference to the proper name of the city.

construction of the sentence appears to me most obviously to refer to a single city. The summer residence of the kings could be but in one place; and the measurement from the Araxes, also, most evidently indicates this one single metropolis. I may farther remark, that the place which Antony attacked is stated positively to have been the capital of the province, a description that we know can only apply to Gaza or Canzaca, though, on the supposition of Strabo's alluding to two different cities, the scene of contest will be represented by Vera:* and again, it is to be observed, that Pliny, who was of course fully aware of the particulars of the Triumvir's disastrous retreat, still only mentions the name of Gaza as the chief city of Media Atropatene.† I do not think, therefore, it can be considered of any weight against the argument, either that Ptolemy, who, as he consulted different itineraries, may be shown in every page to have repeated his notice of the same place, and not unfrequently even under the same name, should be thus supposed to assign different emplacements, in his Median tables, to the two cities of Gazaca and Pharaspa,‡ or that Stephen of Byzantium, who also sought for a diversity of names in all available authorities, should, in the same way, pretend to distinguish between the three cities of Gazaca, Praaspa, and Phraata. I now propose to show the application of all these accounts to the position of Takhti-Soleimán. The extraordinary strength of the place is apparent from the accounts of Antony's campaign. The Parthian and Median forces, in perfect confidence of its impregnability, did not, at first, attempt to relieve the fortress: they even allowed the Romans to erect a mound against the wall, unmolested, while they proceeded by another route to attack the division which was coming up under the command of Statianus; and Phraata fully justified their confidence in its strength, by successfully resisting every effort that was made to reduce it. The natural strength of a citadel on the summit of a mound, like that of Takhti-Soleimán, will explain this rare triumph of barbarian firmness over the combined exertions of Roman courage, discipline, and science.§ But the memorable retreat of Antony into Armenia, when he was compelled to raise the siege of Phraata, described by Plutarch with great topographical minuteness, affords far more determinate grounds for illustrating the position of the city. From Phraata there were

* The distinction of Strabo is evidently merely between the city of Gaza, in the plain, and the acropolis of Vera, upon the hill commanding it, against which latter place, of course, the attack of Antony was directed.

† Lib. vi., cap. xvi.

‡ I say "*supposed*," for it is very doubtful whether the Gazaca of Ptolemy is genuine.

§ The open city of Gaza, in the plain, I conclude to have been occupied by the Romans without opposition

two routes conducting into Armenia; the one a high road through a plain and open country to the left, which was that in all probability that was followed by Antony in his advance; the other by a more direct line, across the mountains to the right.

At Takhti-Soleimán I inquired of the Afshár chief how he would march, if suddenly ordered to Tabriz? "If I had troops," he said, "I should certainly take the high road to the left, and travel by the open line of Ša'in Kal'eh, the valley of the Jaghatú and the Miyándáb plain, and so on by the shores of the lake to Tabriz; but the line we generally follow conducts directly across the hills to the right, leaving Marághah at some distance on our left hand, and skirting Sehend till we descend upon the Tabriz plain." A glance at the map will explain these two roads most clearly and satisfactorily; and I cannot doubt but that it was along this mountain line that the Mardian guide conducted the troops of Antony. Upon the third day's march the Romans came to a valley where the Parthians had broken down the banks of a river and flooded the country, to oppose their progress. I learnt that, at the distance of about 8 farsakhs from Takhti-Soleimán, on the hill road, there actually was such a river, the main branch of the Kárengú, the waters of which were turned off during the spring to irrigate the little valley in which it flowed. The Romans now found themselves to be pursued by the enemy; and as on this and the three succeeding days they marched in square, and were exposed to constant attacks, they could have made no very rapid progress. The country appears to have been hilly, but still not so rugged but that the cavalry were able to act and drive in the Parthian horse, when they attempted to press upon the legions; and the account I received of this part of the line skirting the district of A'jári, exactly answers the description. On the seventh day of the retreat, when the army had probably marched about 70 miles, occurred the memorable engagement of Gallus, in which the Romans lost 3000 killed, and 5000 wounded. I have no means, of course, of verifying the exact field of battle, but it must have been in the hills to the E. of the Miyándáb plain.

After this followed the most trying part of the retreat. The Parthians, elated with their victory, kept up an incessant attack, while the Romans, at every onset, were obliged to form the testudo with their shields to protect themselves from the shafts of the enemy. The greatest distress prevailed among the troops; provisions were so scarce, that a loaf of barley sold for its weight of silver; and the soldiers found themselves compelled to eat the poisonous herbs and grasses of the country. The progress was thus necessarily slow; and 80 miles being, perhaps, as much as can reasonably be allowed for the distance traversed by the Romans under such circumstances, during the succeeding eleven

marches, I conduct the army, by this measurement, from the field of battle into the district of Mihrán-rúd, on the northern face of Sehend. The country appears to have been still mountainous, and yielding but little corn; but, as there was no distress on account of water, I conclude the streams to have been abundant; and these indications of general character are fully answered by the line along the eastern skirts of the great Sehend range, conducting by Teppéh-Teppéh and Kırk-Bólák,* to the district of Mihrán-rúd. There, on the 19th day of the retreat, there was a halt, to consult on the farther prosecution of the route. A range of lofty hills appeared in front, at the foot of which there was a spacious plain, and Antony believing that the Parthians had abandoned the pursuit, was anxious to descend into the open country. He was, however, warned that the enemy were in ambuscade below the hills, and that, if he ventured into the plain, he must expect the fate of Crassus. The road along the skirts of the mountains, he was told by the Mardian guide, was rugged and devoid of water, but it was his only safety. The camp was accordingly struck at sunset, and the troops, conveying their water with them, made a forced march of 30 miles† along the rugged sides of the mountains, pursued by the enemy, and in the morning descended to a river, the water of which was cool and clear, but so salt that it could not be drank with safety. Any one familiar with the country will at once recognise the sterile range of mountains to the eastward of Tabriz, and the great plain stretching away from its base to the shores of the lake, and will see that the Romans, filling their helmets and water-vessels at the Bosmich river, must during the night have followed along the rugged sides of the hills, beneath the 'Aini-'Alí, till, after a toilsome march, they descended, at morning, to the salt stream of the Ají, the only river of this nature, I believe, in all Azerbiján. They were told that there was a fresh-water stream at no great distance; and, accordingly, while it was yet day, they were again upon the march; but the night that followed was more dreadful than can be well conceived—all control and discipline were at an end—the soldiers, maddened with their thirst, committed the most horrible disorders—and Antony prepared for suicide, to avoid falling into the hands of the enemy. At length, however, the army reached the fresh-water stream, which I conclude to be the little river of Sáliyán, and the dangers of the march were over.‡ The Parthians maintained the pursuit no

* At "the forty fountains."

† This is probably an exaggeration; in my calculation I allow for this march about 25 British miles.

‡ The distance from the Ají to the Sáliyán river is about 15 miles, which I think amply sufficient for the night march of the Romans in their most weary and distressed condition.

further than this point; and the Romans, in six easy marches, traversed the remaining distance of 80 miles, which must have intervened, between the Sáliyán river and the Arrás, supposing the passage to have taken place at the thoroughfare of the Julfeh ferry. The distance which, from this illustration of the route, I suppose the Romans to have traversed in their retreat of twenty-seven days from Phraata to the Araxes, will be about 270 miles. I have no means of determining the precise measurement of the mountain line from Takhti-Soleimán to Tabríz, but it must be as near 170 miles as possible.

The Afshárs estimated the high road, by Sa'in Kal'eh, to be 50 farsakhs, or 200 miles; and the short cut across the hills they judged to be between 40 and 45 farsakhs, or between 160 and 180 miles.* I therefore take 170 as the mean, and adding to it the 100 miles which intervened between Tabríz and the Arrás, I find the whole distance to assimilate with the 270 miles, which, merely judging from the circumstances of the march, would seem to be a fair estimate for the twenty-seven days of the retreat, all the remarkable topographical features which occur upon the line corresponding at the same time, with singular accuracy, to the descriptive character of the country, that was copied by Plutarch from the narrative of an eye-witness: but there are other and more accurate means for verifying this distance than those which I have yet employed. Strabo, upon the authority of Dellius, an officer who commanded a division of the army, on this very occasion of Antony's retreat, determines the distance from Gaza to the Araxes, as it was travelled by the Romans, to be 2400 stadia; and to show that he employs in this passage the Olympic stadium, I may instance the Fragment of Livy, in which the same measurement is given at 300 Roman miles, equivalent, as near as possible, to 280 British miles.† Relying on the estimated distance of the line, in farsakhs, I really cannot pretend to fix the exact measurement within 10 miles, either more or less, nor, indeed, do I conceive that the Roman calculation is entitled to any greater degree of dependence upon its minute accuracy. The best means that I have of judging, give me an approximate valuation of 270 British miles; and this I regard as quite near enough the estimate of 300 Roman miles, to answer all the purposes of geographical illustration.

I must now consider the evidence of Pliny. Mr. Williams, in his ingenious, though, I believe, erroneous argument on the iden-

* Among the Turks of Azerbáiján, the farsakh is fully equal to 4 British miles; but in all other parts of the country $3\frac{1}{2}$ miles will be found nearer the value.

† Strabo, lib. xi., c. 18; and Livy, Fragment. I conceive that Livy, Strabo, and Plutarch all followed the same authority of Dellius in their notices of Antony's retreat.

tity of Isfahán with the Ecbatana of Media Magna, supposes that Pliny received the greater part of his information on the internal geography of Persia, from Tiridates, the Parthian king of Armenia, who visited Rome during the reign of Nero;* but as this visit occurred 40 years before the age of Pliny, I think the source of information may well be doubted. At any rate, from where-soever the intelligence was drawn, there is so much confusion and inaccuracy in all Pliny's Persian geography, that it will rarely admit of verification. Thus, in reference to the present subject he says, that "Gaza, the chief city of Atropatene, is 450 miles distant from Artaxata, and measures the same from Ecbatana of Media."† The Artaxata of Hannibal, which is doubtless that alluded to by Pliny, was situated on the Arrás, in the modern district of Máku; and the measurement of a point from that city, on the direct line to Hamadán, the real representative of the Ecbatana of the greater Media, which shall be equidistant from both places, will conduct us to the plain of Miyándáb, where the ruins of Leilán may be supposed to suit the indication;‡ but there are several circumstances which I shall presently detail, that appear to me conclusive against the possibility of Leilán representing Gaza; and even to make the position accord with the evidence of Pliny, the only single authority in its favour, it will be necessary to suppose that he mistook the true purport of the geographical information, and assigned to the half interval between Artaxata and Gaza the measurement that should, in reality, have been applied to the entire distance between Artaxata and Ecbatana. I believe, however, there is an equally plausible way of explaining Pliny, without affecting the already established identity of Gaza and Takhti-Soleimán. Pliny, in the measurement of 380 Roman miles from Susa to Ecbatana, across Mount Charban, would seem to have been really aware of the true position of the Median capital;§ but, in the passage which immediately succeeds the notice of Gaza, and which, it is evident, can only refer to the same Ecbatana of the Medes that is before stated to be equidistant with Artaxata from Gaza, the Latin author most clearly and explicitly betrays, that by this name of Ecbatana, he intends to denote the Macedonian city of Europus. "Ecbatana," he says, "the capital of Media, was founded by King Seleucus; it is 750 miles distant from the great Seleucia, and 20 from the Caspian gates."||

* *Anc. Asia*, p. 51.

† *Lib. vi. cap. 16*, edit. Hardouin.

‡ This is the supposition of the German geographer, Reichard: he proposes, however, to follow the route to Hamadán, by Zenján, and to look for Gaza at the Kizil Uzen.

§ *Lib. vi. cap. 31*, edit. Hardouin.

|| *Lib. vi. cap. 17*, edit. Hardouin.

Without inquiring into the reason of this singular application of the name of Ecbatana to the city of Rhages, which, re-edified by Seleucus, assumed the Grecian title of Europus, it is sufficient for my present purpose to verify the measurement that is drawn from it. Europus, near the site of the ancient Rhages, was situated in the position of the modern town of Verámin, and a line from hence to Takhti-Soleimán, by Teherán, Kazvín, and Zenján, will measure, as nearly as I can calculate, 325 British miles. From Takhti-Soleimán, along the high road to Tabríz, and so on to the Julfeh ferry, measures, as I have already shown, about 300 miles. There is no direct road, I believe, now travelled from Tabríz to the ruins of Artaxata, at the embouchure of the Máku river;* but the deviation to the left will necessarily cause an excess of 20 or 30 miles, over the distance to the Julfeh ferry; and we thus obtain the same measurement of about 325 miles for the line to Artaxata from Takhti-Soleimán, that I have shown to apply to the road distance between that place and Pliny's Ecbatana. The comparative measurement being thus so satisfactorily verified, there is no great object, I believe, in seeking to restore the corrupted numbers of the manuscript of Pliny; but I may, at the same time, suggest, that if we suppose ccccl to have been an error of some ancient copyist, for ccccl, the positive determination of distance will apply, with the same minute correctness, as the comparative, and thus establish, in one instance at any rate, the accuracy of the Latin geographer.

I have spoken of the possible identity of Leilán and Gaza, for which the appearance of the ruins, and, perhaps, the authority of Pliny, seem to have found some advocates. The reasons that I consider to be determinative against it are briefly these: Gaza is mentioned as the summer residence of the Median kings, but Leilán, in the Miyándáb plain, is positively one of the very hottest spots in all Azerbáján. In Antony's retreat, the distance will not in any way coincide, nor is there any shorter road from Leilán to the Arrás, than along the borders of the lake of Urumiyah, a natural feature of so marked and peculiar a character, that it is impossible to suppose it could have been overlooked in the narrative of the expedition, had it been seen upon the line of march. Again, Leilán is perfectly well known in Oriental geography. It is described in the 14th century, by Hamdu-llah, as "a small town in the district of Marághah, surrounded with gardens, and producing corn, cotton, grapes, and excellent fruit, and watered by the river Jaghatú;" and in no author have I ever met with an

* Col. Monteith has, I believe, the credit of first fixing the position of the ancient Artaxata. The ruins of Ardashár, near Eriván, which have been so often assigned to the Armenian capital, mark the site of the second Artaxata, a city that rose into power after the destruction of Hannibal's Artaxata by Corbulo.

allusion to it in ancient times. I fear, then, that to the ruins of the fort, which certainly are calculated to attract attention from their appearance, can be assigned no earlier date than that of their Moghul sovereigns, and that its identification with Canzaca, which disfigures Colonel Monteith's map of *Azerbîjân*, must be expunged from the future editions.*

Ptolemy next presents himself; and I confess I enter on his examination with very little pleasure or confidence. From the evidence which he gives of the comparative position of places in relation to each other, he sometimes may afford useful hints to corroborate the statements of other authors; but I doubt whether a geographical identification of any consequence in the East was ever discovered by the mere indication of his tables, or whether any one at the present day would be content to build an argument on so very doubtful an authority. I do not propose, therefore, to derive any support from his testimony: if I can give a reasonable explanation of his errors, I shall be more than satisfied.

The first difficulty which I meet with is the distinction of two cities of *Gazaca*, and *Pharaspâ* with the assignments of geographical positions, that remove them from each other upon the map almost as far as the distance between *Tabriz* and *Teherân*. *Gazaca* is placed in lat. $41^{\circ} 10'$, and long. $81^{\circ} 15'$; and *Pharaspâ* in lat. $40^{\circ} 30'$, and long. $85^{\circ} 30'$.† The discrepancy of these positions alone would seem to prove that either the numbers are corrupted, or that two different places must be alluded to; and I believe I can show reasons for placing Ptolemy's *Gazaca* altogether out of the field of inquiry. In many of the manuscripts this name does not occur at all, the word being written *Azaga*. It is placed in the extreme north of *Media*, within a degree and a half of the *Araxes*, which could not have been the case, I think, had Ptolemy intended to represent the city; that, he must have been well aware, was determined by the retreat of *Antony* to be nearly 300 Roman miles S. of the river. The longitude, also, when viewed comparatively with the great natural features in the vicinity, bears the same evidence of distinction. *Azaga* is placed more than a degree to the W. of the *Median lake*.‡ It is even beyond the great mountain-barrier of *Zagros*, and above five de-

* I must also notice another curious illustration of comparative geography in this map. At *Kal'eh Zohâk*, near *Sereskend*, are placed the ruins of *Atropatene*. Now, from whence this name is drawn I am at a loss to guess. *Procopius* is the only single author among the classics who applies the provincial title to the capital, and in his history it is named *Ardabigan*, which there can be no question is identical with the *Canzaca* of other authors. I must further remark, that I passed a day minutely examining the ruins of *Kal'eh Zohâk*, and that I was able to satisfy myself that no city whatever ever could have existed there. The ruins are those of a strong *Sassanian* fortress, such as are to be met with in all parts of *Persia*.

† *Ptol.*, lib. vi. c. 2.

‡ The Lake of *Urumiyah*.

gree from the Amardus or Kizil Uzen. It is therefore certain that the Alexandrian geographer, Agathodæmon, who constructed maps to illustrate the tables of Ptolemy, must have followed some other authority in placing Gazaca near the river Amardus, in the region of the Margasi;^{*} and if the name of that people may be recognised in the modern title of Marághah, his evidence will thus rather strengthen the arguments in favour of Takhti-Soleïman than add any weight to the errors and confusion of Ptolemy.

I assume, then, that the position of Pharaspa is the only point that requires to be examined; and even this will be found sufficiently difficult. From some cause, which is not duly explained, there is a greater tendency to exaggeration in Ptolemy's latitudinal measurements of Western Persia than in those of any of the contiguous countries; and this exaggeration in the latitude of the Albanian gates, the northernmost limit of Western Persia, will be found to reach a maximum of five degrees, the gates being placed on the parallel of 47° , while the true latitude is 42° . Now if any general principle whatever can be employed for the restoration of Ptolemy's distorted measurements to their true equivalents, it is evident that it can only be the assumption of his error of excess being equally distributed, within certain limits, over equal spaces; and accordingly a reduction, at the rate of five in forty-seven, should give the relative value of all the latitudes of Western Persia.[†] But there appear to have been at the same time so many other particular causes of vitiation in the construction of Ptolemy's tables, such as a reference to itineraries, and an attention to recorded distances of other authorities, that it is, I believe, impossible, for any uniform scale of rectification to answer with correctness, in its practical application, to any great section of his geographical system. In the present case, however, the reduction gives a satisfactory result; and I believe, indeed, it will be generally found to apply as well as any uniform scale can possibly be expected. The rate of reduction for the latitude of $40^{\circ} 30'$, which is that assigned to Pharaspa, will be $4^{\circ} 18'$; and this, subtracted from Ptolemy's numbers, will give the corrected measurement of $36^{\circ} 12'$; the true position being determined astronomically at $36^{\circ} 28' 12''$.

But if we can only obtain this imperfect verification of latitude by an almost arbitrary system of reduction, what can we hope for in the far more complicated question of longitude? It seems to have been the usual custom for geographers of late[‡] to follow the formula of reduction in the proportion of seven to

^{*} See Cellarius, *Ant. Geog.*, vol. ii. p. 671.

[†] It has been often remarked that all Ptolemy's maritime positions are more accurate than his inland; and this scale therefore cannot be expected to apply to the latitudes in the Persian Gulf.

[‡] See Vincent's *Commerce and Navigation of the Ancients* vol. i. p. 113; and Murray's *Asia*, vol. i. p. 48..

five, which was first proposed by M. Gosselin, for the rectification of the longitudes of Ptolemy;* but as the principle on which his calculation depends is altogether fanciful, and has long been banished from the field of geographical inquiry,† I can hardly think the mere practical applicability of the scale which is derived from it to be sufficient to warrant its adoption without any explanation of the reasons of coincidence. The question, however, is not so obscure as it has been thought; for as Ptolemy himself in detailing the longitudinal system of his geography, as far as it regards the construction of his map of Central Asia, affords us a direct explanation of the causes of his error of excess; so at the same time his own evidence points out the only means of analysis by which this error can be rectified with a due respect both to theory and practice. The foundation of his longitudinal measurement of Asia was, as he himself declares, the recorded itinerary of the caravans that traded between Rome and China;‡ and in constructing a map from these materials his errors of projection were threefold.

Firstly, on a line from Hierapolis, upon the Euphrates, to the stone tower, which must have been situated a short distance to the eastward of Yârkend, he converted road distance to measurement upon the map, at a uniform reduction of one in eleven and a half, instead of one in eight, or, perhaps, which would be more accurate upon so long a line, one in seven. Secondly, he committed the astronomical error of computing an equatorial degree at 500 instead of 600 Olympic stadia; and thus upon the line of the itinerary which was assumed to be about the parallel of Rhodes, or in latitude $36^{\circ} 21'$, he allowed only 400 stadia to a degree of longitude, while the true measurement was 480; and, thirdly, in converting the schœni of the itinerary into Olympic stadia, which gave him his element for computing the degrees of longitude, he assumed their uniform identity with the Persian parasang of Olympic stadia, or $3\frac{1}{2}$ Roman miles, whilst I believe the schœnus to have been the natural measure of 1 hour, employed by all caravans, both in ancient and modern times, to regulate their daily march, and to have averaged, as near as possible, a distance of 3 British miles.§

The amount of excess caused by these three errors in the elements of Ptolemy's computation may then easily be calculated; and they will be found to fix the scale of rectification at a reduction nearly in the proportion of ten to seven (strictly $\frac{10}{7}$), a rate

* In the "Géographie des Grecs Analysee."

See the admirable treatise on Ancient Geography by M. Larenaudière, chap. i., in Malte Brun's Geography.

† Lib. i., cap. 11.

§ The Parthian stations of Isidore of Charax, where he employs the schœnus in describing the caravan route from Zeugma to the frontiers of India, confirm this valuation in the most decisive manner.

|| 115 schœni are valued, according to Ptolemy's calculation, at $7^{\circ} 30'$. Their true geographical equivalent, on the line of the Rhodian Diaphragm, would be $5^{\circ} 17'$.

which I believe will answer with greater accuracy than M. Gosselin's proposed correction of seven to five along the particular line of Central Asia, and which has the advantage of being based on rational and direct evidence, afforded by Ptolemy himself, instead of pre-supposing, with M. Gosselin, the existence of a system of astronomical observation among the early Asiatic empires, far superior to that possessed by the geographers of Greece, and rivalling the perfection of modern science.* In the present case this scale applies, without any considerable error; for Ptolemy's measurement from Hierapolis to Pharaspa, $14^{\circ} 15'$, reduced in the proportion of ten to seven, will be equivalent to $9^{\circ} 58'$, which is within half a degree of the true interval; and, considering the rough materials with which he worked, this approximative accuracy is all, I think, that can be looked for. Respecting the relative position of Ptolemy's Pharaspa to the great natural features in the vicinity, I may also remark, that it is placed correctly enough between the river Amardus and the Median lake; and that the mountain-barrier of Zagros appears nearly a degree to the W. of it.

At the same time, however, I must observe with respect to Ptolemy, that I do not pretend to advocate any systematic rectification of his Asiatic geography. We may perceive, it is true, without much trouble, the causes of his error; and in some instances we may succeed in correcting his measurements, by a mere attention to those causes; but I believe that, until we are able to analyse all his various sources of information, and to trace, in particular, every stage of his caravan route through Asia, it is in vain to expect to identify the greater part of his positions, or to render his work of any real benefit to the science of comparative geography. I shall endeavour to explain, in one connected form, the many vicissitudes of name which the capital of Media Atropatene appears to have undergone, when I arrive at the period of its foundation. I have only here to remark, that the names of Vera, Praaspa, &c., applied to the castle upon the mound; and that the titles of Gaza and Gazaca were employed to designate the town in the plain. Early in the second century the town would seem to have dwindled into insignificance, though the castle retained its celebrity; for Arrian, who wrote under the Emperor Adrian, names Gazaca as a large Median village;† and this may be, perhaps, the reason why, if my preceding argument is correct, Ptolemy only included Pharaspa in his Median catalogue. However, the place must soon afterwards have recovered its importance; for Quadratus, who wrote also in the

* See Murray's *Asia*, vol. i. page 479.

† See Stephan. de Urbibus, under the head Γάζαα.

second century, describes Gazaca as the largest city in Media;* and Agathodæmon, who is supposed to have framed his maps about the same time, gave a conspicuous place to the Median Gazaca.

Before I now quit this portion of the inquiry, and ascend to the times of the Median Ecbatana, I beg to recapitulate the state of the argument as it at present stands. I have clearly and demonstratively shown the identity of the Arabian Shîz with the ruins of Takhti-Soleimân. I have established, as I think, most conclusively, the connexion of this Arabian Shîz with the Sasanian Canzaca; and I have now traced up the history of the same city, under various names, to a date preceding the Christian æra, showing the applicability of the best authorities to this place, and this place only, and explaining the errors of others in a way that can, I hope, leave little ground for cavil. It thus follows that, in the first century before Christ, the capital of Media Atropatene is proved to have occupied the site of the ruins now known under the title of Takhti-Soleimân. Beyond this period, it is no longer possible to keep up the sustained historical connexion on which I have hitherto based my argument. The Parthian wars, it is true, which occupy so conspicuous a place in the Roman annals, were preceded by the Syro Macedonian empire of the East, of which we also possess imperfect notices; and this dynasty, again, arose upon the ruins of Alexander's conquest, the best authenticated period of ancient history; but still, in all these great political convulsions, Media Atropatene escaped being made the theatre of contest, and the internal geography of the province thus remained, until the time of Antony, almost a dead letter in Western science. The site of a great capital, however, rarely changes, except upon some change of dynasty, when the national character of the country undergoes a corresponding alteration; and then the event can scarcely fail of being commemorated, either in history or tradition. I think, therefore, that if I can show the original capital of Media Atropatene to have been named Ecbatana, and can, at the same time, glean a few notices of the place from history under the same title in succeeding ages, during which the province enjoyed an almost uninterrupted tranquillity, I shall be authorised in assuming the identity of that ancient Ecbatana with the city which represented the capital in the time of Antony; and when I further show the applicability to Antony's Phraata of all the descriptive evidence regarding the Atropatenian Ecbatana, and explain and verify the various mutations of title which at present obscure the argument, I believe the identification will be allowed to be proved with as near an

* See Stephan. in loco cit. I take the age of Quadratus from M. de Sainte Croix, in the Exam. Crit. des Hist. d'Alex.

approach to demonstration as the science of comparative geography will admit.

I ascend at once, then, to the æra of Herodotus, and before I consider his geographical, I must necessarily, to avoid perplexity, devote a few remarks to his historical, evidence. In the very narrow limits here allotted for discussion, I cannot be expected to enter at any length upon the controverted points of chronology between the extinction of the Assyrian monarchy, in the person of Sardanapalus, in B.C. 821, and the æra of Cyrus the Great, in B.C. 559. The subject has been elaborately treated by Mr. Dickenson, in a very able paper published in the *Journal of the Royal Asiatic Society*;^{*} and though I confess that I am hardly prepared to admit, in its full extent, his individual identification of the Median Arbacidæ with the lower Assyrian dynasty, or his attempted reconciliation of oriental with classic history, yet that he has clearly established the novel and, at the same time, most interesting historical fact of a distinction between the two Median dynasties of Herodotus and Ctesias, is not, I think, to be disputed. These two authors, be it remembered, both drew their materials from the national records of Persia; and it cannot be supposed, therefore, that a dynasty described by one as composed of nine kings, and continuing for 267 years, can possibly refer to the same family which the other limits to four kings, and to a duration of 156 years, especially when, in the two lists, there is not a single identical name except the last. That all chronologers, indeed, from Eusebius and the Syncellus down to the present century, have insisted on assimilating these two discordant lists, instead of authenticating their labours, only proves how much of system, and how little of rational criticism, has hitherto pervaded the inquiry. I take it for granted, then, that the dynasty founded by Arbaces, after the first destruction of Niniveh, is different from that which owed its origin to Dejoces, above a century later; and this distinction of the two families, involving also a distinction of two Median kingdoms, affords me the first evidence of there having been two Median capitals of the name of Ecbatana. Arbaces, it is stated by Ctesias, after the capture and destruction of Niniveh, conveyed the treasures of Assyria to Ecbatana, the seat royal of Media; and the city is said, by the same author, in another passage, to have existed from the most remote antiquity, and to have been beautified and enlarged by Semiramis, in one of her Asiatic tours; the general description evidently alluding to Hamadán, the seat royal of the greater Media, though perhaps in one particular Ctesias, in common with many others, borrowed a tradition from the less ancient site.† Whether the kings who

^{*} *Journal of the Royal Asiatic Society*, vol. viii. art. 16.

† I allude to the famous cut of Semiramis, which supplied Ecbatana with water.

succeeded Arbaces resided at Niniveh or Hāmādān, is of little consequence to the argument. It is sufficient that, after a lapse of five generations, which are recorded by Ctesias, with no other remark than the duration of the respective reigns, Artæus, the lineal descendant of Arbaces, ascended the throne of Asia in B.C. 691. During his reign a great revolt occurred of the provinces of interior Persia, and though the rebels are named by Ctesias, Cadusians, yet, as it is impossible to suppose 200,000 men could have been raised from this single tribe, I am inclined to include in the rebellion the neighbouring province of Media Atropatene;* indeed, it is not impossible but that the leader of the revolt, who is named Parsodes by Ctesias, and who rendered himself independent of the great Median empire, may be the Dejoces of Herodotus, Parsodes, or Phrazad, being an affiliative epithet given him from his father Phraortes.†

I now take up the narrative of Herodotus. He states that the Medes, (by which we can only understand the inhabitants of Media Atropatene, for Artæus was upon the throne of the greater Media,) after the period of their revolt, finding the evils of living without laws or government, unanimously elected Dejoces, a native Median, to be their king. "Dejoces," he then says, "was no sooner seated upon the throne, than he commanded his subjects to build a city, and to fortify and adorn it, bestowing his attention upon no other place. The Medes, obedient to the command, erected that great and strong city, now known under the name of Agbatana, where the walls are built circle within circle, and are so constructed that each inner circle overtops its outer neighbour by the height of the battlements alone. This was effected partly by the nature of the ground, a conical hill, partly by the building itself. The number of the circles was seven, and within the innermost were built the palace and the treasury. The circumference of the outermost wall was almost equal to that of Athens. The battlements of the first circle were white, of the second black, of the third scarlet, of the fourth blue,

Mr. Williams supposes himself to have discovered this in the Zendebrūd of Isfahān, but he is quite mistaken in the grounds upon which he builds his argument. However, it must be allowed that, at Hamadān, the true Ecbatana of Ctesias, there is nothing of the sort; and, moreover, the physical characteristic, recorded by Ctesias, of the city being built upon the declivity of the lofty mountain of Orontes, is utterly irreconcilable with a scarcity of water. I am, therefore, inclined to suspect that, in describing the wonderful tunnel of Semiramis, Ctesias must have employed a tradition of the other Ecbatana, referring to the time when the Zindāni-Soleimān became suddenly exhausted of its waters, and they were diverted by a subterraneous channel into the basin of the Takht.

* It is worthy of remark, that the Cadusians are almost invariably associated with the Atropatenian Medes in all subsequent history.

† For the account of the Median dynasty by Ctesias, see Diod. Sic., lib. ii. c. 3. For the Atropatenian dynasty of Herodotus, see that author, lib. i., from cap. 95 to cap. 130.

of the fifth orange—"all these were brilliantly coloured with different paints; but the battlements of the sixth circle were gilt with silver, and of the seventh with gold."

"Such were the palace and the surrounding fortifications, that Dejoces constructed for himself; but he ordered the mass of the Median nation to construct their houses in a circle round the outer wall."

It has been asserted, that Herodotus furnishes us with no hint from whence we may infer the relative position upon the map of the Agbatana, which he thus curiously describes,* but this is not the case. I have already shown that, as the capital of the Atropatenian Medes, it must necessarily have been in *Azerbáján*; and Herodotus, in another passage, confirms this natural inference in the most direct and positive manner. "The pastures," he says, "where they kept the royal cattle, were at the foot of the mountains north of Agbatana, towards the Euxine Sea. In this quarter, toward the Sapires, Media is an elevated country, filled with mountains, and covered with forests, whilst the other parts of the province are open and champaign."† These mountains, again, north of Agbatana, are frequently mentioned by Herodotus in his episode of the birth and education of Cyrus, as immediately contiguous to the city; and the indication, therefore, of the Sapires and the Euxine Sea applying to them, will necessarily fix the position of the capital of Dejoces, as far as Herodotus was himself aware of it, in the northern and mountainous division of the province, or Media Atropatene, distinguished from the champaign country of Media Magna to the south.

There is then, I believe, no place in this province that will so well suit the description of Herodotus as the spot which we find, in after ages, still holding its metropolitan character. The conical hill, surrounded with walls, is a marked and peculiar feature that certainly does not exist at present in any part of *Azerbáján*, except at the ruins of *Takhi-Soleimán*.

I will now endeavour to explain the story of the seven walls. This is manifestly a fable of Sabæan origin, the seven colours mentioned by Herodotus being precisely those employed by the orientals to denote the seven great heavenly bodies, or the seven climates in which they revolve. Thus *Nizámí*, in his poem of the *Heft Peiker*, describes a seven-bodied palace, built by *Bahrám Gúr*, nearly in the same terms as Herodotus. The palace dedicated to Saturn, he says, was black—that of Jupiter, orange, or more strictly sandal-wood colour ‡—of Mars, scarlet—of the Sun, golden—of Venus, white—of Mercury, azure—and of the Moon,

* Williams's Ancient Asia, p. 2.

† Lib. i. cap. 110.

‡ In Persian, *Sandalí*; in Greek, *Σανδαλίνος*.

green, a hue which is applied by the orientals to silver.* I cannot believe that at Agbatana the walls were really painted of these colours; indeed, battlements gilt with gold and silver are manifestly fabulous; nor do I think that there ever could have been even seven concentric circles; but in that early age, when it is doubtful whether mithraicism, or the fire-worship, had originated in this part of Asia, it is not at all improbable that, according to the Sabæan superstition, the city should have been dedicated to the seven heavenly bodies, and perhaps a particular part assigned to the protection of each, with some coloured device emblematic of the tutelar divinity; and that, after the lapse of 1000 years, during which the city had enjoyed the highest religious celebrity that it could reach, in preserving within its walls the most sacred fire of the Magians, the original Sabæan superstition was not effaced, is evident from the Armenian history, where, as I have already shown, at the end of the third century of Christ, the capital of Media Atropatene was still characterised as "the second Ecbatana," or "the seven walled city."†

Herodotus probably received his account of Agbatana from the Medians whom he met at Babylon; and that he should have accurately preserved an indication of its geographical position, and the remarkable feature of an embattled conical hill, is perhaps as much as can be expected from him. He must have been grossly deceived in estimating the circumference of the outer wall at nearly the size of Athens; indeed, that a palace built for the residence of a single man should be nearly twenty miles in circuit, is, of course, a palpable absurdity.‡

I believe the mound of Takhti-Soleimán to have been first surrounded with defences by the Median Dejoces, and the area within the walls, which was amply sufficient for the noblest palace that kingly splendour could devise, to have been reserved by him for his exclusive residence. The great mass of the city, as Herodotus declares, was in the plain below, and this distinction between the palace and the city was preserved as long as the place continued to be inhabited.

In attempting to connect the ancient oriental legends with legitimate Grecian history, I do so under great reservations, for, as we attain a more accurate knowledge of the cuneiform inscriptions, everything tends to show the authenticity of the one, and the fabulous character of the other; indeed, when we find

* See the Poem of Heft Peïker, in the *Khamseh* of Nizâmî. Pers. MS.

† It is very curious to observe, in connexion with this subject, that the figures of the heavenly bodies were preserved as objects of adoration in the temple of Shiz, or Canzaca, above sixteen centuries after the era of Dejoces, as long, indeed, in all probability, as the temple continued to retain its sacred character.

‡ See Larcher's *Herodotus*, tom. i. p. 357, where he has collected all the ancient authorities regarding the size of ancient Athens.

that in the time of Darius Hystaspes the genealogical glory of the regal family was identified with the line of the Achæmenidæ, tracing its descent through that illustrious dynasty from some great primeval ancestor named Amakhem, and his offspring Pelubiya, the progenitor of the Pehlevîs (and whom I take to be the Zeus and Perseus of the Greeks), and that the nobility of all collateral races, whether connected with Arbaces, or Dejoces, or even Cyrus, was overlooked in this exclusive consideration of the direct line of hereditary royalty, it does appear to me too much to expect that, after an interval of 700 years, the revival of literature should have still found the recollection of those early revolutions of empire so strongly impressed upon the public mind as to afford data, in the romantic histories which were then first embodied, for assigning to each hero of popular tradition his true representative in the page of history. However, it is possible that, in matters connected with the Magian religion, a few great traits of geography and history may have escaped the general disfigurement of antiquity, and when I also consider that in the reign of Ardeshrîr Bâbegân the province of Azerbîjân, and its ancient and holy capital, naturally attracted the great share of popular attention, I gain some clue to explain the general character of verisimilitude which pervades the notices regarding these places scattered through the pages of the Zend A'vestâ. I believe there are sufficient reasons for identifying the Airyana Vaedjô, or Airyana the pure, of the Zend A'vestâ, with Azerbîjân. Monsieur Quatremère has succeeded, in the most satisfactory manner, in tracing the application to the province of Media, of the names of Aria and Ariana from the remotest antiquity down to times comparatively modern;* and it could have only been, I think, to suit a preconceived theory that Anquetil du Perron, in translating the supposed works of Zoroaster, insisted on assimilating the title of Airyana to that of the province Arran, north of the Araxes, which derived the name, doubtless, from the same source, but which there is little reason to suppose could have assumed it prior to the æra of Mohammed. Bearing in mind the tradition of Zoroaster having first appeared in Shîz, or Ecbatana, and also taking into account the real antiquity of this city, which, as the capital of the province, seems in all ages to have assumed upon occasions the provincial title, we shall now derive many curious points of illustrative evidence from the writings of the early Magians. Airyana the pure, or I'rân Vîj, as it is uniformly named in Anquetil's translation, was supposed to have been the first terrestrial habitation erected by Ormazd. It was a place of delight and abundance, unequalled for its beauty in the entire

* In a long and most excellent note to his translation of the Moghul history; I have not the work at hand to quote the page to which I refer.

world, until Ahrimán caused to appear in the river that watered it the great snake, which afflicted its hitherto genial climate with the severest horrors of winter. Aīryana, again, is said to have been peopled by Ormazd with a heavenly race, and when Jemshíd appeared upon the earth, it was in this place that he fixed his residence, and, with the assistance of this heavenly race, that he established his authority over the world.* In a letter which I lately received from the great Orientalist Von Hammer, at Vienna, he says, "It is eighteen years ago since I proved, in the ninth volume of the *Vienna Review*, the identity of Jemshíd and Dejoces; and this has been since confirmed at full length by Hottý's *Researches* (Hanover, 1829)." I should scarcely venture, I confess, myself to pronounce the direct identity of any fabulous character with a real historic personage; but still I cannot doubt that many of the great deeds of Dejoces were transferred, in oriental tradition, to Jemshíd, the favoured hero of romance; and among these, the establishment of the Median kingdom, and the building of Ecbatana. The *Vendidad* goes on to say, that in Aīryana the rigour of the winter was excessive, the mountains and the whole country were covered with snow, but when the snow is melted, on the return of spring, the rills descending from the mountains scattered around an universal verdure—and then the description commences of the famous palace and citadel built by Jemshíd, or Dejoces, in this favoured spot.

Jemshíd, it is said, erected a Var, or fortress, sufficiently large, and formed of squared blocks of stone; he assembled in the place a vast population, and stocked the surrounding country with cattle for their use. He caused the water of the great fortress to flow forth abundantly. The soil was rich, and produced all that could be desired, and the enamelled fields scattered around delightful odours—the country was excellent, and resembled heaven. And within the Var, or fortress, Jemshíd erected a lofty palace, encompassed with walls, and laid it out in many separate divisions; and there was no high place, either in front or rear, to command and overawe the fortress.† The surrounding country he peopled abundantly, and placed in the most flourishing condition, and he applied himself to perfect Var-afshuvé, or "the Var, abounding in all things."‡

These passages I have selected from the second chapter of the *Vendidad*, as bearing the most marked application to the site of Takhti-Soleimán. The natural beauty of the surrounding country in the spring season, when the melting snow descends in rills from

* See Anquetil du Perron's *Zend Avesta*, *Vendidad*, Fargard. i.

† Anquetil gives this optional reading, vol. i. p. 276 note 2.

‡ See *Zend Avesta*, *Vendidad*, Farg. ii.

the mountains, is, as I have remarked in my preceding memoir, proverbial throughout Persia. The severity of the winter is equally characteristic; for I suppose there is no inhabited part of *Azerbījān* where the snow lies as deep as around *Takhti-Soleimān*. The circumstance of the great snake, also, which *Ahrimān* created in the river, is, perhaps, not less curious, when we remember that there are so many stories of this nature connected with the Median dynasty, from its bearing the family name of *Azdehāk*,* or the dragon, and when we see that at the present day a ridge of rock, formed by the calcareous deposit of the water, retains this very title of "The Dragon." I may also notice the isolated hill, there being no high place to command it, either in front or rear; the massive walls of hewn stone, and the palace inside, laid out in divisions, the cause of which I have conjectured in explaining *Herodotus*; the causing the water to flow forth abundantly by an aperture, doubtless made in the rocky banks of the lake; and the rich and productive character of the neighbouring lands; and I may assert, I think, that these are all exact and determinative points of evidence, that it is impossible to verify at any spot in all *Azerbījān*, or, perhaps, in all Persia, but at the ruins of *Takhti-Soleimān*. Indeed I can only account for the extraordinary accuracy of the description, by supposing the *Vendidad* to have been written in the reign of *Ardešhīr Bābegān* by Magian priests, who were familiar with the localities, and who had received traditional accounts of the real ancient foundation of the city by the Median king, *Dejoces*. There is no direct indication that I can find in the Zend books of the geographical position of *Aīryana*, or of its capital, which is named, in *Pehlevī*, *Vār-Jemgird*, or the fortress of *Jem*, though *Anquetil*, and, after him, *Saint Martin*, repeatedly state that it was contained within the limits of *Aīryaman*, which they translate by *Armenia*.† A general connexion is certainly perceptible in the *Vendidad* between the three names of *Aīryaman*, *Aryama*, which *Anquetil* conceives to be *Urumiyah*, and this title of *Aīryana*. They are all mentioned as the special objects of the care of *Ormazd*, and among the first places that embraced the law of *Zoroaster*; but I think it more probable that they should all relate to the kingdom of *Aria* or *Media Atropatene*, and its capital, *Ecbatana*, than that the Magians, in the time of *Ardešhīr*, should have been supposed to commemorate either the petty and obscure town of *Urumiyah*, which was unknown in history, or the hostile nation of

* The Arabic form is *Azdehāk*. The Persian *Azhdehāk*, or *Azhdeha*.

† *Zend Avesta*, tom. i. part ii. p. 429, and *Saint Martin*, tom. i. p. 271. *M. Burnouf*, the best *Zend* scholar living, doubts that the *Aīryaman* of the *Zend Avesta* applies to a country at all.—See "*Essai sur le Yaçna*," tom. i. part i. p. 107 of the *Notes et Eclaircissements*."

Armenia, which there is no reason to believe ever observed, with any degree of purity, the dualistic principles of Zoroaster. That the Indian Pársis, however, understand that these two words, Aryama and Aïryaman, to relate to Urumíyah and Armenia, is more than probable : and we thus see the origin of the tradition which assigned to the former town the birth-place of Zoroaster, and supplied the author of the *Ferhengi-Jehángíri* with the stories of the cities of Arminíyah and Shíz, and the fire-temple of Derekhsh having been founded by the Magian prophet. Aïryana, the pure, however, is the great theme of awe and admiration ; and in the *Vendidad* it is expressly said that Zoroaster here first promulgated the law,* a statement which in its resembling the tradition of Shíz, recorded by Zakaríyá, is strikingly confirmative of the identity of the two places. To the Pehleví *Bundehesh*, or the Pehleví, translations of the *Zend Avestá*, I cannot allow an antiquity nearly reaching that of the writings in the *Zend* language. The *Bundehesh*, indeed, I believe, can be distinctly proved, by its geographical nomenclature, to be a work of the twelfth or thirteenth century ; and I do not, therefore, attach much weight to its explanation of the more ancient positions. The author, however, though he confounded Vár-Jemgird, or the fortress of Jemshíd, which the *Vendidad* names simply Var, with a certain fabulous Jemkend, in the country of Dámaghán, appears to have rightly understood the locality of Aïryana the Pure, or, as it is written in Pehleví, I'rán Vij. It was on the borders, he says, of Atún-Pádegán, or Azerbíján;† and he repeats the tradition, that “Zoroaster, when he received the law from Ormazd, first published it with success in I'rán Vij and Mediyómáh” (perhaps the country of Media, which the word literally signifies, rather than the name of a person, as Anquetil supposes), “embraced the excellent religion.”‡ He also states that Zoroaster was begotten in I'rán Vij;§ and all these indications seem to refer to the Arabian Shíz. In another Pehleví fragment it is mentioned that Zoroaster returned to I'rán Vij, after having declared the law to Gushtásp,|| and that on this occasion his wife washed herself in the Rúd Kansé (or river of Kansé), a name which certainly recalls to mind the river of Ganza, or Canzaca.¶

I have stated my opinion of the modern character of the *Bundehesh*. The names of Chejest, applied to the lake of Urumíyah ; of the Khejend-rúd, or river of Khojend ; the Arez-rúd, or river of Herhaz, in Mázenderán ; and the Teremet-rúd, or river of

* *Zend Avesta*, tom. i. part ii. p. 109.

† *Zend Avesta*, tom. ii. p. 410.

‡ *Idem*, p. 419.

§ *Idem*, p. 393.

|| *Zend Avesta*, tom. i. part. ii. P.N. p. 37.

¶ In the Pehleví translation of the *Vendidad* of Jámásp this river is said to be in Atún Pádegán.—See *Zend Avesta*, tom. i. part ii. p. 269, note 1.

Termed, in Turkistán; with a multitude of other names, that appear to me wilfully disfigured from their true modern forms: * all incline me to this judgment; but there are two names connected with the I'rán Vij, which, if my identification of them is allowed, will distinctly prove an era subsequent to the Moghul invasion of Persia. These names are Chekayet Dayeti, applied a river or rivers of Azerbáján.

In the Bundelesh they are merely mentioned in connexion with I'rán Vij; † but the Zerdusht Náme, as it is followed by Anquetil in his life of Zoroaster, would appear to state that they were passed by the pseudo-prophet on his road from Urumiyah to I'rán Vij, when he was travelling to the mountains to seek inspiration from Ormazd. ‡ With this indication, then, I restore them to their true Turkish orthography, of Jaghatú and Taghatú, or Tatáu; and if this homely illustration is admitted, while it strengthens my argument in favour of Takhti-Soleimán, it will at the same time show from what a most unworthy source the modern cosmogony of the Pársis is derived. Indeed I should scarcely wonder if the famous bridge, Chínévád, where the Pársis believe the final judgment will take place, and which the Bundelesh describes as upon the Chekayet or Jaghatú, § should turn out to be the Kiz Kópri, near Şa'in Kal'eh; and the Gate of Hell, in the vicinity, may also be the Zindáni-Soleimán. But I must leave further speculation, and return to my argument.

Airyana I have supposed to apply to the province of Azerbáján, and sometimes, possibly, to its capital city. The Var of Jemshíd refers, I believe, exclusively to the citadel. The original root of this word is the Sanskrit Vara, signifying, "encompassing, surrounding;" and in all succeeding ages the name was applied either as a proper title, or in its general signification of a fortress to this citadel of Ecbatana. Thus the Zend Var, the *Βάρις* || of the Greeks, which is always employed to denote the treasury-citadel of Ecbatana; the Vera of Strabo, applied to the Median fortress, which was attacked by Antony; the Balaroth or Vara-rúd (the river of Vara) of Theophylact; and the *βασιμαν*, or keeper of the Baris, which is used by the Emperor Heraclius, in reference to the governor of this very fortress of Canzaca. The Persian Bárú, "a wall of fortification," is, of course, referrible

* Thus (page 367) the mountains of Kúlish or Dámaghán are named Mad no friyad, which I believe to be the Arabic Ma'deno-l-Faulád, or "mine of steel," the mountain-district to the present day retaining the title of Faulád Mahalleh.

† Pages 364, 365, and 392.

‡ Zend Avesta, tom. i. part i. p. 20.

§ Tom. ii. part ii. p. 365.

|| *Báris* is explained by Hesychius and Suidas, with a variety of meanings, all relating to an embattled citadel. The word, however, is, I believe, almost exclusively applied by the Greeks to the fortresses of Persia.

to the same root; and it is curious that this root should assimilate so nearly to the words employed in the Semitic languages: *Bíreh* in Hebrew; *Bírhá* in Syriac; and *Bírenthá* in Chaldee; also to denote an embattled citadel.

I wish I could give as satisfactory an explanation of the title which applied to the city as of that adopted by the fortress; but this, I fear, is unattainable. The author of the *Pentaglot lexicon*, indeed, refers the Hebrew *Achmetha*, which appears to have been the Chaldaic way of writing the Grecian *Agbatana*, or *Ecbatana*,* to a root signifying "to guard, protect, or collect together;" and though the derivation is not free from exception, yet as the connecting links of the Syrian *Ahmethán*, the Armenian *Ahmetan*, and the Persian *Hamadán*, serve to show that the true Oriental pronunciation of the word is in favour of this etymology. I believe that it may be received in preference to any other.† The great objection seems to be that the derivation of a Persian or Median name should be rather sought for in the Indo-Bactrian than in the Semitic languages; but against this it may be argued that the name was certainly in use in Syria; that if it were first introduced into Media by Semiramis it would necessarily be Semitic; and that we have no proof as yet that the Median language was not itself of that family. Be the derivation, however, what it may, there can be little question but that the title was applied exclusively to cities which contained a strong citadel for the protection of royal treasures. We have unquestionable evidence that in the two Median *Ecbatanas* were deposited the treasures of the king.‡ The Persian *Ecbatana* of Pliny and Josephus can only be represented by the treasury-citadel of Persepolis.§ There are grounds for supposing a treasury to have existed in the strong position of the Syrian *Ecbatana* upon Mount Carmel, which is noticed by Pliny and Herodotus;|| and lastly, if there ever were an Assyrian *Ecbatana*

* See Schindler's *Lexicon*, under the head *נחם*, p. 596.

† There is no one, I believe, at the present day who would be inclined to pay any regard whatever to Bochart's fanciful derivation of *Ecbatana* from the Arabic *Aghbeth*, signifying "dust, or brick-coloured" (*Phaleg*, lib. iii. c. 14); and Scaliger's reference of the word to the Hebrew *Béthan*, "a palace," is, I think, equally unsatisfactory. Buxtorf derives the Hebrew *Achmetha* either from *אחם*, which he translates by "scrinium," or from *חם*, "heat," *Achmetha*, or *Ecbatana*, having been a royal summer residence. This is quite in the style of "lucus a non lucendo."

‡ The notices of the Atropatenian treasury-citadel I have already given. For the treasury of the *Ecbatana* of Media Magna, see Ctesias in *Diod. Sic.*, lib. ii. c. 3; all the historians of Alexander; Strabo, p. 731; and *Isid. Char.* in Hudson's *Minor Geographers*, vol. ii. p. 6.

§ Plin., lib. vi. c. 29, and Joseph. *Ant.*, lib. x. c. 11, s. 7. Josephus places this *Ecbatana* in Media; but the description unquestionably refers to the palace or castle of Persepolis.

|| Lib. v. cap. 19; cap. 64, *Her.*, lib. iii.

—a point that I think very doubtful*—the castle of 'Amádiyah, which, according to Mr. Rich, retains to the present day the title of Ekbadan, and which is the strongest fortress in all Kúrdistán, will best suit the indication.† I assume, then, that the title of Ecbatana merely signifies a treasure-city; and in this way I explain both the error of Pliny, who applied the name to the Arsacidan stronghold of Europus, distinguished from their open capital of Arsacia, which was situated at some distance to the S.,‡ and the similar mistake of Ammianus Marcellinus, in aluding, under the title of Ecbatana, to the city of Isfahan, which in his day formed the Sasanian capital of Central Persia.

In the Atropatenian city of Ecbatana, Dejoces built a palace and a treasury. Cyrus conveyed to the same place the captured treasures of Lydia; and these ancient trophies of national glory were believed to be still deposited there at the time of the invasion of Heraclius. We thus perceive at once the natural cause of the change of name in the Atropatenian capital. The exotic Ecbatana was translated, under a native dynasty, into its vernacular synonym of Gaza;§ and the modification which the name farther experienced, to the Armenian form of Gazaca, Canzaca, or Kandsag, perpetuated to the ages of its latest decadence its original character of the city of treasures. But there are other names employed in the campaigns of Antony, which are, perhaps, even less susceptible of direct explanation. If the city were ever really named Phraata, as it appears in Plutarch, Appian, and Stephen, it could only have been a temporary appellation imposed upon it in honour of the Arsacidan king, Phraates; and this I scarcely think probable. The title in Dion Cassius, Ptolemy, and Quadratus, is written Praaspa, Pharaspa, and Phraaspa, words which are nearly similar, and which bear evident marks of a Zend etymology. The literal signification of Phraaspa in Zend would be, "abounding in horses;" and when we find in Strabo and Polybius that this was really one of the great characteristics of the province,|| we at once acknowledge the propriety of the epithet. There are two other ways, however, of explaining

* See Ammianus, lib. xxiii., c. 6, and Plutarch, in the life of Alexander. I doubt, however, the existence of this Assyrian Ecbatana.

† Kúrdistan, vol. i. p. 153.

‡ Lib. vi. c. 17. This Ecbatana, the Ragau of the book of Tobit, and Rhages of Alexander, is represented by the remarkable ruins of Kál'eh Erig, near Verámin: the ruins of Arsacia are to be seen at Shehri-Toghán, in the desert, 12 miles S. of Verámin.

§ The Greeks, it is well known, uniformly asserted their adoption of the word Γαζα, "a treasury," from the Persian. Brissou de Reg. Pers. Princip., p. 157, has collected the evidence of all antiquity on this subject. The root, however, is of Semitic origin, but was probably very early naturalised in Persia. In modern Persian it is modified into the term Ganj.

|| Strabo, p. 523; Polyb. lib. v., c. 55.

the title, which are scarcely less plausible. In the *Vendidad* the place is named *Verofshuwé*, or the "abundant Var;" and this is not very dissimilar to the Greek corruption; and, again, *Zohák*, whose connexion with the Median dynasty of *Dejoces*, however Persian fable may disguise the fact, is still unquestionable, was named *Azdehák*, or "the Dragon," and *Bíverasp*;* and from this last title might have originated the barbarous *Praaspa*, which still adhered to the capital of the Dragon dynasty. I now take up the last of the many titles which I have shown to have been bestowed on the *Atropatenian Ecbatana*; and this title of *Airyana* participated between the province and the city in the same way as, in after ages, *Azerbájan* was employed to denote both the one and the other, affords a most curious, and, at the same time, a most gratifying subject of inquiry. The evidence of the *Zend A'vestá* is, I think, strikingly illustrative. *Herodotus* also mentions that the *Medes* (by which, as I have already shown, he means the inhabitants of *Media Atropatene*) were anciently called *Arii*.† It is possible that the *Hará* of the *Israelitish* captivity may be referrible to the same source; for it is worthy of remark that the *Hará* of one passage is replaced in the other by "the cities of the *Medes*."‡

And the book of *Tobit*, again, as far as the authority goes, appears to me quite decisive of the application of this title to the *Atropatenian* capital. In the very reign of *Dejoces*, as it would seem from a comparison of dates, *Tobias* was sent by his father from *Niniveh* to *Rhages*. Now, between these two capitals there have been in all ages but two routes; and what makes the discrimination between these two routes in antiquity so very difficult is, that they both traversed a Median capital of the name of *Ecbatana*. The two roads conducting to the two *Ecbatanas* are distinctly marked at the present day by a continued line of antiquarian monuments, which, I think, have been never put together in a connected series. Thus, on the direct route to the *Atropatenian Ecbatana*, we have the mound at *Arbela*; the pillars with cuneiform inscriptions at *Sídek*, and *Keli-Shín*; the village of *Háik*, immediately on descending the mountains, which, in thus preserving the name of the great *Armenian* patriarch, has evident claims to antiquity; the very remarkable artificial *tepeh* in the plain of *Soldúz*, on which is built the fortress of *Nákhodeh*; the tomb, and other remains at *Inderkesh*, near *Só-új Bólák*; the ruined bridge of *Kiz Kópri*; and, finally, *Takhti-Soleimán*. On the other route we have *Arbela*; the naphtha pits of *Kerkúk*, where, from the testimonials of all antiquity, there must be some

* D'Herbelot writes the name *Piurasp*, which is incorrect.

† *Líb* vii. cap. 62.

‡ See 1 *Chron.*, c. v. v. 26; and 2 *Kings*, c. xvii v. 6

most interesting remains;* the famous But Kháneh, or idol-temple, on the skirts of the plain of Shehrizúr; the ruined city of Húrín; the sculpture at Sheikhán; the arch at the gates of Zagros;† Baghistane, or Bísitún; the temple of Kengavar; and the Ganj Náneh, in the defile leading into Hamadán.

Even, did ancient authors afford no illustration of these routes, I think the monuments themselves would clearly mark the lines of communication; but still the very clearness of this proof of their existence rather increases the difficulty of their distinction. We find in our English copy of the Book of Tobit, translated from the Greek, that Tobias arrived at the Median Ecbatana, on the route from Niniveh to Rhages;‡ but as a city of this name would have occurred on either line, we do not thereby obtain any clue to the determination of which route he followed. Certainly if we refer to the map we shall at once see that the line by Shehrizúr, Zoháb, and Hamadán, will cause an excess of more than a hundred miles above the distance along the direct road through Takhti-Soleimán. Both the routes, however, were followed in antiquity; and the deviation, therefore, is no proof against Tobias having been conducted along the southern line. As far as research is concerned, then, it certainly is not a little curious to find that in the Latin copies of Tobit the name of Ecbatana of Media does not occur at all; that the marriage with Sara, and the other events, which in our version are described as taking place at Ecbatana, are assigned in the Latin copies to Rhages;§ and that the only place which is mentioned on the line between Rhages and Niniveh, and which must thus necessarily be the same as the Greek Ecbatana, is Charran.||

This place, moreover, is stated to be situated between Rhages and Niniveh, at the distance of 11 stages from either. In illustrating the geography of the ancients, we must pay particular attention to the rough estimates of distance which are calculated in stages or days' journey. These stages, which answer to the *Menzil* of the present day, cannot be verified by their assimilation to any uniform distance, either along the road or upon the map: local causes will arise to lengthen or shorten them, according to the character of the country which they traverse; and the only

* Besides the evidence of Strabo, Plutarch, Quintus Curtius, and Ptolemy, I may observe that the naphtha pits of Kerkúk occur in the sacred writings of the Bráhmans, and are still sometimes visited by devotees from India.—See *Asiatic Researches*, vol. iii. pp. 297 and 434; and vol. iv. p. 374.

† I have mentioned all these places in the Memoir published in the *Journal of the Royal Geograph. Soc.*, vol. ix. part i.

‡ Tobit, c. vii. v. 1.

§ The Vulgate account is certainly most confused; for if the marriage with Sara took place at Rhages, where is the other city of that name to which the angel was despatched to recover the money from Gabel (c. ix. v. 3)?

|| Vulgate, c. xi. v. 1.

means of illustration is thus to compare the ancient estimate with the *Menzils* of the present day. In the present instance I give the stages exactly as they are now travelled. From Verámin* to Teherán, 1; to Kazvín, 3; to Zenján, 4; and to Takhti-Soleimán, 3,—making an aggregate of 11. Again, the stages from Takhti-Soleimán are: to Só-új Bólák, 3; to Soldúz, 1; to Ushneí (the villages of Háik, or Sirgán), 1; to Sídek, 1; to Rowándiz, 1; to Herír, 1; to Arbíl, 1; to the Greater Záb, 1; and to Mósul, 1,—which also give a result of 11, and, I believe, correspond in actual distance to a nicety with the other half of the line.

The Ecbatana of the greater Media or Hamadán, I may remark, at the same time, will not in any way suit this indication. From Verámin to Hamadán, is 9 stages; and from Hamadán to Mósul is 19. It remains to verify and to explain the name of Charran,† which I shall be able to do with much exactitude, when the course of my argument again carries me down to the Arabian geographers. Here I shall only say that the word is identical with Arrán; and that of this we have a striking proof in the analogous instance of the great Mesopotamian city, the name of which was written indifferently, either with the initial guttural Kharrán and Harrán, or without it, Arrán, and, perhaps, more simply Ar-Rán. In the time of the Greek and Latin geographers, as the names of Aria and Ariana had been extended over almost all the countries that professed the Arianian religion of Zoroaster, it is not surprising that the particular provincial title from which the name arose should have escaped their observation. Apollodorus, as he is quoted by Stephen, is, perhaps, the only author who directly alludes to the Arrán or Ariana of Media.‡ The name of Ariana, he says, is applied to a nation who border on the Cadusians; and, when we remember that the Cadusians, whose proper seat was in Tárom and the Gilán mountains, extended their sway over all the neighbouring countries, doubtless including the hill country of Zenján, and had been, moreover, associated with the Atropatenian Medes in their original revolt under Dejoces, and probably during the whole period of their later history, we shall perceive the application of the passage. It has been surmised by Saint Martin and Quatremère, that the Airán of the Sasanian coins and inscriptions, rendered letter for

* The ancient Rhages, as I have already mentioned, was situated at Kal'eh Erig, near Verámin, and must not be confounded with the Arabian Rei. The ancient road probably led from the plain of Sultáníyah, by Sojás, to Takhti-Soleimán; but this would only shorten the distance a few miles.

† The Catholic critics have laboured hard to explain the geography of the Latin version of Tobit, but, as it appears to me, they have only involved the subject in a greater confusion.—See Hardouin. *Opera Selecta*, p. 543.

‡ Stephan. de Urbibus in voce 'Aqana.

letter by the modern term *I'rán*, owes its origin to the same source;* and what is more to the purpose, M. Quatremère has distinctly proved, that, in the whole range of Armenian history, the names of *Arii* and *Aïrán* are uniformly employed, with a special and direct reference to Media, and the Medes—a remarkable point of evidence, that requires only to be further strengthened by the observation that the Medes, of all later history, are the inhabitants of Media Atropatene; and that the *Arii*, of the Armenians, should, therefore, in all probability, be confined exclusively to the people of this province. I now descend into a later age; and I am able to prove that this very title of *Arrán*, which I have traced down from the *Charran* of *Tobit*, and the *Aïryana* of the *Zend A'vestá*, actually applied to the district or town of *Takhti-Soleimán*, within the last 700 or 800 years. The distortion which Persian names undergo, in being reduced to the pronunciation and orthography of the Arabs, is well known. An initial, *a*, followed by a double letter, is, in particular, perpetually confounded with the definite article, *Al*, coalescing with the first letter of the proper name to which it is prefixed. Thus, the Persian name of *Arrás*, applying to the river *Araxes*, is always written by the Arabs *Al-rás* which has, indeed, the same pronunciation; but which, according to the rules of the Arabic language, should give to the river the proper name of *Rás*. In the name of *Arrán*, also, whether applying to the province N. of the *Araxes*, or to the town and district of *Takhti-Soleimán*, the same confusion is observable. Thus, the name is written indifferently *Arrán*, or, with the article *Al-Rán*; (pronounced *Arrán*) and some authors, deceived by the formation of the latter word, have supposed the real title to be *Rán*. This will be more apparent by the following extracts:—

Mes'údí, as I have already shown in two passages of his work, associates the names of *Shíz* and *Ar-Rán*, and that, too, in cases where he can only allude to a single city; thus proving, that if I have succeeded in identifying *Shíz*, I have also verified the position of *Ar-Rán* at the same place. But *Yákút* is even more satisfactory, clearly showing this identity; and, at the same time, explaining the loss of the initial guttural, which I have alluded to in the *Charran* of *Tobit*. In the *Morásido-l Ittilá'*, under the head of *Arrán*, we first find a description of the province of that name, N. of the *Araxes*; and it is then stated that *Arrán* is sometimes used to denote the famous city of *Harrán*,†

* Saint Martin, tom. i. p. 274.

† This is the great Sabæan city named *Charran* in *Genesis*, and *Charræ* by the Greeks, the seat of the scene of the defeat of *Crassus*.

in Diyár Modhár.* Under the same head, in the Moshterek, we find "Arrán is a celebrated province, adjoining Azerbáiján, containing the cities of Beilekán and Ganjeh; secondly, it is the title of a castle in the territory of Kazvín; and thirdly, it is a title of the famous city of Harrán."

I now turn to Ar Rán, the orthography employed by Mes'údí, and I find in the Morásid, "Ar Rán is a town between Marághah and Zenján, possessing mines of gold and lead;" and in the Moshterek, "Ar Rán is a town and district adjoining the province of Azerbáiján; and, I consider this place to be altogether distinct from the province of Arrán. 'Omar Ibn Mohammed El Hanafi, in his panegyric upon Mohammed Ibn 'Abdo-l Wahíd el Yemámí,† says, that he conquered Azerbáiján and Armínieh; and reigned at Ar Rán, until he caused the inhabitants to sleep in quiet; and freed the place from all wicked men." I have not the volumes of the Mo'jemo-l Beldán, which contain these names of Arrán and Ar Rán, but, under the head of Harrán I find it there stated that "the first founder of this famous city is supposed to have been Rán, the brother of the Patriarch Abraham; and he is said, in memory thereof, to have imposed his name on it, which was Arabicised into the present formation of Harrán." I may also quote a single line from the Ferhengi-Jehángíri, which mentions Arrán as "the name of a particular district (belúk) of Azerbáiján;" evidently not in allusion to the provinces of that name; and concludes the subject by stating that Abú-l Fedá and Mes'údí employ both the orthographies of Arrán and Ar Rán, in reference to the province; and that the ancient Georgian title applied to the same country, was Rání.‡

From these sources of evidence, I think, then, I am able to show, 1st, That the analogous instance of Harrán and Arrán warrants my asserting the identity of the Charrán, of Tobit, with the Persian Arrán; 2ndly, That the Ar Rán, of the Arabian authors is merely an arbitrary orthography employed to express a name, whose true Persian pronunciation was Arrán, in one word; and, 3rdly, That this name of Ar Rán, associated with Shíz, by Mes'údí, in evident reference to a single town, is assigned by Yáqút to the same relative position between Marághah and Zenján; and further characterised by the same peculiar circumstance of possessing mines of gold and lead, must necessarily be another title for the same place. The only pretence at distinc-

* Diyár Rab'eh, Diyár Bekr, and Diyár Modhár, are the three divisions of Northern Mesopotamia in Arabic Geography.

† I suspect this Mohammed to have been a general under the Ommiade Khaliph 'Abdo-l Melik Ibn Merwán, towards the close of the first century of Islám, but I cannot speak with confidence.

‡ Saint Martin, tom. i., p. 271.

tion that Yákút attempts, is in assigning the name of Arrán to the town, and Shíz to the district; but, if a distinction is to be kept up, I think this should rather be reversed, and that we should assign the title of Arrán to the surrounding country; the Aíryana, the pure, of the Vendídád, and Shíz, to the town of Canzaca; or, perhaps, to the particular embattled mound that formed its most remarkable feature.

I shall attempt little more of argument, for, I confess, I think now that the identification of Ecbatana is established.

Returning to the period of the Median dynasty, we find that Dejoces, after a reign of 53 years, was succeeded by his son Phraortes. This monarch is identified by some chronologers with the Arphaxad of the Book of Judith, as well from a supposed resemblance of name, as from the circumstance of his defeat and death, by the Assyrian king of Niniveh, mentioned in that Book, coinciding with the record of the same event, preserved by Herodotus. The name, however, if it is corrupted from Aphrazad, or Phraazad, should rather apply to Dejoces, the son of Phraortes,* and the building of Ecbatana, would seem to denote the same monarch. I cannot admit, indeed, any direct identity between the names of Arphaxad and Phraortes; the one is evidently a compound, and the other appears in the tablets of Bísitún, rendered letter for letter with the same orthography as that employed by Herodotus: the Fráurtish of the inscription is the fourth captive figure that appears bound and suppliant before Darius, in his character of Archimagus. He is described as the king of Media, of the race of Húkhsheter (a Zend compound, which the Greeks seem to have hellenised into Oxathres); but, as the part of the inscription which particularly describes his character and fate is illegible, I cannot determine whether this Phraortes is the second Median king, whose subjugation of the Persians may have led Darius, when the empire had passed into the hands of a family of that nation, to exhibit him, under the appearance of a captive, for the mere gratification of the national vanity; or whether, as I confess, it appears to me far more probable, the passage of Herodotus, which mentions a revolt of the Medes under Darius, and which, in its supposed application to the times of Darius Nothus, has been a source of some perplexity to the critics,† should not really be understood as alluding to an insurrection of that nation, in the reign of Darius Hystaspes, which was speedily crushed, and the leader of which would not unnaturally be represented amongst the other vanquished warriors who yielded to the Persian arms. But to return to the

* According to Herodotus both the father and son of Dejoces were named Phraortes. Syncellus gives the orthography of *Ἀφραόρτης*.

† See Larcher's Herodotus, tom. i., p. 382.

Arphaxad of Judith, and the description of Ecbatana, which is certainly very striking. "Arphaxad," it is said, "the king of the Medes, reduced many nations under his power, and he built that great city which he named Ecbatana. It was built of stones squared and hewn; and he made the walls 70 cubits in breadth and 30 cubits in height, and he erected towers of the height of 100 cubits; and the towers were square, and measured upon each face a space of 200 feet, and he built gates of the same height as the towers."*

As the Arphaxad, of Judith, is necessarily either the first or second king of the northern Median dynasty, this description must refer to Takhti-Soleimán rather than to Hamadán. The common tendency of eastern hyperbole has, probably, somewhat exaggerated the dimensions of the fortress; yet the coincidence with Herodotus and the Zend A'vestá is certainly striking; and the authority, if not synchronous with the events described, is, at any rate, entitled to the confidence of a Chaldee legend of great antiquity. The Assyrian king is afterwards said to have defeated Arphaxad; but the Vulgate mentions nothing of the subsequent capture and destruction of Ecbatana, as we read in the English version; and, whether we suppose the Median king to have been Dejoces or Phraortes, the evidence of Herodotus would seem decisive against such an event ever having occurred.

Phraortes, after the disastrous result of his Assyrian campaign, was succeeded by his son Cyaxares. This title has been recognised as a compound of the Persian Kei, a royal epithet applied to the early Persian kings; and the proper name, Axares, which name, I must observe, in all its modifications, of Ahasuerus, Assuerus, and Xerxes, is positively identical in its elements, with the cuneiform, Khshyarsha, or, which is the same thing (with the prefix of the definite article), Ah Khshyarsha. I cannot doubt that this king sate upon the throne of his sire and grandsire, at the Atropatenian Ecbatana. He marched from that place against Niniveh, to avenge his father's death, but was recalled by an invasion of the Scythians; in describing which, Herodotus again clearly shows, that by the name of Media he implies Atropatene.

"From the Palus Mæotis," he says, "to the Phasis and Colchis, it is reckoned thirty days of good travelling. To pass from Colchis into Media, one has to traverse a range of mountains; but the passage is very short, for the Sapires are the only nation that intervene between these countries. The Scythians, however, did not enter Media upon this side; they passed higher up and by a longer route, leaving Mount Caucasus on their right;†

* Chap. I., b. 1, 2, and 3. I follow the Vulgate in preference to the English translation, which gives even more exaggerated measurements.

† Lib. i. c. 104.

that is, they traversed the pass of Derbend, and from thence burst into Media.

The Medes, under Cyaxares, as it is well known, were defeated, and for 28 years submitted to a foreign yoke. It is probable that the Scythians, in their usual spirit of encroachment, sought to extend their conquests over the contiguous kingdoms; for Ctesias notices, under the reign of Astybaras, the contemporary monarch of greater Media, a war with the Sacæ, which continued for many years, and occasioned great slaughter, but was finally accommodated without any decisive results upon either side. The Atropatenian Medes, after an interval of 28 years, recovered their liberty; and Cyaxares then led them a second time against the Assyrian Niniveh, which was finally overthrown and destroyed by him in B.C. 595. On his return from this great conquest by the direct route across the mountains, I conceive that he, most probably, erected the pillars of Sídek and Keli-Shín, to commemorate his crowning victory; and he no doubt closed his days in his paternal capital of Ecbatana. Tobias, at about the same time, is stated to have died in extreme old age, at Ecbatana, of Media,* having migrated with his family from Niniveh during the reign of Dejoces, when "for a time there was peace in Media;"† and I cannot question but that this is the same Ecbatana or Charran which he had visited upon his journey to Rhages.

It seems most probable that Cyaxares in the overthrow of the great kingdom of Niniveh, also brought under his sway the countries of Media Magna, governed by the Arbacidæ, who were either identified, or at any rate very closely connected with the Assyrian dynasty; and that he thus, in his own person, first united the sovereignty of the two Medias. His son Astyages, in all probability, continued to hold his court in his hereditary capital and thus I refer to the Atropatenian Ecbatana; all the incidents of the birth and education of Cyrus the Great, as far as they may be historically received, in the writings of Herodotus, Xenophon, and Justin. With regard to the Oriental accounts of this period of history, if any great national revolution could be expected to survive in the popular traditions, it certainly would be the delivery of Persia from the condition of a subjugated province, and the consolidation of Asiatic empire, in the person of Cyrus the Great. I accordingly recognise, in the fabulous stories of Zohák and Ferídún, the translation of the kingdom from the Medes to the Persians; the traits of similarity, indeed, between the historical account of the Median family of Dejoces, and the Persian stories of Dhohák, Arabicised into Zohák, are too striking to be overlooked. The two names, in the first place, are

* Tobit, c. xiv. b. 14.

† Tobit, c. xiv. b. 3.

nearly identified. Zohák was likewise called Azdehák, or the Dragon, the same name with the Greek Astyages; and the Dragon race of Armenia, whom history represented as the descendants of Astyages, were believed in popular tradition to derive their origin from the Dragons that issued from the shoulders of Zohák.* Again, the length of the reign of Zohák, extending to 1000 years, evidently implies a dynasty; and all tradition is unanimous in describing it as a foreign dominion (that is, foreign to Persia proper), which was at length set aside by a native family. Altogether it appears to me that the Persians must have adopted from Astyages the last of the dynasty, the name of Azdehák, which they employed to denote the family; that, in reference to the descent of Astyages from Dejoces, they likewise made use, in the same way, of the title Dbohák; that they also included, under the reign of this Dbohák, the three generations of Astyages, Cyaxares, and Phraortes; but that as Phraortes was the first who brought the Persians under subjection to the Median yoke, although, employing the name, they did not, in the person of Dbohák, refer to the character of his father Dejoces; but rather assigned to that monarch as the founder of a great civil, and, perhaps, also religious polity, the career of wisdom, glory, and kingly power, which belongs to the fabulous Jemshid; and it is further very curious to observe, that there was some extraordinary confusion on this head among the ancient Persians, when they first began to communicate their history to the Arabs; for Mes'ûdí says, that in some of their legends Jemshid was made identical with Zohák.

This view presents, however, a thousand difficulties, the usual results of collating history with fable: my object in detailing it is merely to show that the Persians, in supposing Ferídún to have established the seat of empire in his native province of Azerbiján seem to have had an indistinct idea of the royal and metropolitan character of the Atropatenian Ecbatana in the time of Cyrus, after the recovery of Persian independence. The Vendidad even ascribes the birth of Ferídún to the city of 'Verene, the squared,' (or probably built with squared stones,†) which certainly recalls to mind the Var of Jemshid, at the Atropatenian Ecbatana; and I believe I trace another form of this word, referring to the same epoch of history, in the Barene of Ctesias.‡ Herodotus says that, after the Lydian campaign, Cyrus brought the captive Cræsus and his treasures to Ecbatana, and when Ctesias, therefore, writes that Cyrus bestowed upon Cræsus the city of Barene, near Ecbatana, I only understand him to have assigned his pri-

* See Moses, Choron. lib. i. c. 21, 29, 30, and 31, and lib. ii. c. 24, 46, and 58.

† Zend Avesta, tom. i. part I. p. 269.

‡ In Excerpt. Ctes. apud. Phot., also Stephen in voce *Baqén*.

soner an honourable residence in the Var, or Baris, of the Atropatenian capital. But it may well be asked, if the Ferídún of Persian tradition is Cyrus, who is Kei Khosraú? and how are all the intermediate reigns to be disposed of? I can only suppose that, as there are stronger traits of identity between Kei Khosraú and Cyrus, than in any other instance where Greek and oriental history can be compared, except perhaps between Zohák and the Median dynasty; the Persian fabulists, in the story of Ferídún, must have merely embodied the remembrance of their delivery from a foreign yoke, whilst, in the romance of Kei Khosraú and his immediate predecessors, they sought to obtain from the proper and provincial lineage of Cyrus, perfectly distinct from the succession of Median or Assyrian royalty, a long and connected line* of regal ancestry, for the mere purpose of ennobling the birth of their great national warrior. Kei Káuś, the grandfather of Kei Khosraú, is, at any rate, identical with the Cambyses of Herodotus, who was the real father of Cyrus, for the name is written Kábús in the cuneiform inscriptions,* the same with the Georgian Kapos, the Zend Kavaus, and the Persian Kábús, which was long a favourite title among the Dilemite sovereigns;† and, if we could only further trace up the real genealogy of Cyrus between Cambyses and Achaemenes, we should perhaps discover other marks of identity with the preceding generations of Persian story. I have already observed the many characteristic traits in the early legends of Persia that connect Kei Khosraú with the city, the fortress, and the temple of Shíz, and these all incline me to the belief that the Ecbatana, which is mentioned in Grecian history in reference to Cyrus, is the capital of Media Atropatene, and not of Media Magna.

But after this period it becomes most difficult to discriminate between the two cities. To which of the two Ecbatanas is to be referred the remarkable passage in Ezra is, I think, very doubtful. The Jews, in the time of Darius Hystaspes, prayed that search might be made in the royal treasure-house of the kings of Babylon for the decree which Cyrus had deposited there relative to the rebuilding of the temple. The words which are employed in the Hebrew, Syriac, and Greek, to denote this treasure-house, Genzíá, Gezá, and Gaza,‡ all recall to mind the Gaza of Atropatene; but the succeeding verse, "and there was found at Achmetha, in the palace, that is, in the province of the Medes," § where the Hebrew Ahmethá is rendered in Syriac by Ahmethan,

* The Kábús of the inscriptions is the son of Cyrus, thus showing the true oriental form of the Greek *Kapúōns*.

† The name of Kei Káuś is frequently written in old Persian Kávús, and Ibn Jauzí, in the *Merato-z Zemán*, expressly says that the Arabic form, Kábús, is corrupted from this; he thus writes the name of Kei Káuś, either Kávús, or Kábús.

‡ Ezra, c. v. i. 17, and c. vi. v. 1.

§ C. vi. v. 2.

would seem to point out, in the resemblance to the modern pronunciation of Hamadán, the capital of Media Magna. The Septuagint, however, regarded Achmetha, in which they could hardly avoid recognising the familiar title of Ecbatana as a generic name for a city, and, accordingly, rendered it, by πόλις;* and it is also worthy of remark, that Josephus and all the Christian Greeks, although retaining the proper name of Ecbatana, yet agree with the Greek Scriptures in employing the word βάρης† to express the Hebrew Bîrthá (the palace), which is used as the distinctive epithet of the city; and I confess that, as every thing seems to prove the attachment of Cyrus to the city of his nativity, rather than to the stranger capital of the greater Media, I should be inclined to suppose that he had there deposited in the famous βάρης, or Var, his Jewish decree, along with the other records and treasures of the empire.

It follows, also, in regard to Herodotus, that if his Ecbatana of Dejoces is to be identified with Takhti-Soleimán, the city which he describes under the same name as the capital of all Media, in his distribution of the Satrapies of Darius Hystaspes, will necessarily be represented by the same place;‡ and this, I confess, presents some difficulty, for we cannot but suppose the other Ecbatana to have been fully equal, if not indeed as the more ancient city, superior to the Atropatenian capital. However, Herodotus never visited Media; and as it is clear that, in the accounts of the province which he received at Babylon, he altogether failed to distinguish between the two capitals, the confusion of his evidence in this instance is, perhaps, nothing more than might be expected. That the Southern Ecbatana, however, was in reality the Median capital of Darius Hystaspes may be inferred from the tablets of the Ganj Námeb, where that monarch has commemorated his name and titles; and, indeed, subsequently to this æra, in a few instances only, can we discern with any clearness that, under the name of Ecbatana, an allusion is intended to the Atropatenian city. The Median Agdabata of Æschylus§ may be either the one or the other; but it is curious that the epithet of Ἀκεσσαία, which the scholiast to this passage asserts to have been anciently applied to the city, should in its evident derivation from the Zend, Ah Khshaihya, the king, resemble so closely the title of Shabasdán, or royal, which we know to have been the distinctive epithet of the Sasanian Kandzág. The statement, also, which appears in a host of authors, of Ecbatana having

* Some of the MSS., however, say it Ἀμαθὰ is πόλις. See Polyglott Bible, vol. i. p. 833.

† The MSS. of the Septuagint that use the expression, is πόλις is τῇ βάρει, certainly appear to employ βάρης as the proper name of the city.

‡ Lib. iii. cap. 92.

§ Persæ, vers. 927.

formed the summer residence of the Persian kings,* is alike deficient in any evidence of distinction, for if Hamadán enjoys an agreeable summer climate, and still traditionally retains the character of having been honoured by the annual visits of the ancient sovereigns,† so Takhti-Soleimán also, in all times, ancient and modern, has been proverbially celebrated in the East for its delicious coolness during the summer months; and Strabo's statement of the Median kings having resided in their summer palace of Gaza, is verified at the present day by the summer encampment of the Prince Governor of Khamseh, which is often pitched during the hot months in the delightful pastures around the ruins of the Takht. Perhaps the only marked geographical application to the Atropatenian Ecbatana which occurs between the æra of Darius and the Macedonian invasion, is that contained in the retreat of the Ten Thousand, where, however, it is impossible to say whether Xenophon himself recognised the distinction, or whether he merely repeated the popular story of the country, without understanding its real allusion. When he was at the foot of the Carduchian mountains he heard, he says, of a route conducting eastward across the range to Ecbatana and Susa,‡ which route, I think, must necessarily refer to the famous line by Rowándiz and Sídek, leading to the capital of Atropatene, and from thence by Kurdistán and Mesobotene to Susa; for the route from the same point to Hamadán would have conducted nearly due S. for nearly 200 miles before it crossed the mountains, and this is evidently the road which was described to him as leading in a southerly direction into Media.

I now come to the Macedonian invasion of the East, a period which it might be expected would clear up all the difficulties relative to the Ecbatana of Northern Media, but which, on the contrary, will really be found to aggravate those difficulties in no trifling degree, and which, in fact, may be considered as the great cause of all the perplexity that involves the subject at the present day. If we only attended to the writers previous to this æra, we might, without much hesitation, say that the two cities were distinguished, the Arbacidan Acbatana of Ctesias being evidently a different city from that described under the same name by Herodotus, and that the native Greeks, who perused the two histories in their closets at Athens, confounded the names, and merely recognised one great Median capital of Ecbatana, we might regard, perhaps, as the natural consequence of an identity

* For the summer residence of the ancient kings at Ecbatana, see Brisson, de Reg. Pers. Princip., p. 5,859,860, where he has enumerated all the authorities.

† This is mentioned by Zekáriyá in the Atháro-l Beldán, under the head of Hamadán.

‡ Xen. Cyrop., lib. iii.

of title. But that Alexander, who sought with so much care and assiduity for geographical information relative to all the countries which he traversed, should have resided in one Ecbatana, without penetrating the mystery of the double name, is a circumstance most difficult to account for; but which, notwithstanding, I conceive to be no less certain than that this very ignorance served to perpetuate the confusion in all subsequent geography. It can only be explained by the reflection that neither did Alexander himself ever enter the province of *Azerbiján*, nor were a party of his troops even admitted, at any time, within the frontiers of the forbidden country; or if, indeed, as I almost suspect, the gold mines of *Hysperatis*, which Menon was sent to examine, may be recognised in the metallic riches of the mountainous country on the *Asped-rúd*,* or *Kizil Uzen*, still, even in this case, as the detachment was utterly destroyed by the wild mountaineers, no intelligence whatever could have been derived from the exploratory attempt.† *Atropates*, or *Atrapes*, who was the governor of *Media Atropatene* under the last *Darius*, and who, it is to be remarked, by the historians of Alexander's campaigns, is invariably named the *Satrap of Media*, the *Governor of Media*, or the leader of the *Medes*, observed, with the *Macedonians*, a line of careful and sagacious policy that preserved the independence of his country almost alone amid the ruins of prostrate Asia, and enabled him to transmit the crown to a long line of illustrious descendents. The general of the *Medes* and *Cadusians*, at the battle of *Arbela*,‡ retired to his native fastnesses after that disastrous combat, and for a time appears to have been still prepared to support the falling fortunes of *Darius*;§ but when the Persian monarchy became extinct, and Alexander returned victorious from his Indian campaign, *Atropates* was among the first to propitiate the conqueror by the tender of his nominal allegiance, and thus to secure to himself the unmolested government of his native province.|| He even strengthened himself by a family alliance with *Perdiccas*,¶ and is further said to have displayed before the *Macedonian* king a strange exhibition of female warriors on his last visit to the greater *Media*;** but we have distinct evidence, at the same time, that, in his distant and guarded connexion with

* Strabo, p. 529.

† Saint Martin supposes the *Hysperatis* of Strabo to refer to the district of *Ispér*, N.E. of *Er Rám* (tom. i. p. 69), but in another passage Strabo appears to denote the same place under the name of *Sysperatis* (the sibilant and aspirate being commutable in ancient Persian), and this he places to the S. beyond the limits of *Armenia*, and bordering on *Adiabene* (p. 503), which will not at all suit the northern position of *Ispér*; neither did the troops of Alexander at any time approach the vicinity of *Erz Rám*.

‡ Arrian, lib. iii. c. 8.

¶ Ibid., lib. vii. c. 4.

§ Ibid., c. 19.

|| Ibid., lib. xvi. c. 29.

** Ibid., c. 13.

the Greeks, Atropates never, in any degree, compromised his real independence, or permitted any foreign interference whatever in the administration of Atropatene. To this exclusive and forbidding policy, then, on the part of the native chief, can be alone attributed the ignorance of the Greeks. That they did positively hear the name of the Atropatenian Ecbatana, I think I can clearly show; but it would seem that the caution of Atropates had thrown so much obscurity over everything connected with his country, that they were unable to distinguish his capital from the Median city of the same name which they captured and occupied, and of which they transmitted their accounts to posterity.

Thus I cannot doubt that, when Arrian states Darius to have fled, after the battle of Arbela, through the mountainous tract of Armenia into Media, along a road which was by no means commodious for the march of a large army,* he must necessarily refer to the line by Rowándiz and Sídek, to which I have so often alluded; and Diodorus, therefore, in writing that the fugitive monarch, having crossed the mountains, first came to Ecbatana, where he endeavoured to rally his scattered forces,† must, in the same view, obviously denote the capital of Media Atropatene. But Darius, after sending out Atropates to raise his warlike and perhaps tributary neighbours the Cadusians and Sacæ, must have moved himself to the more central and commodious position of the capital of greater Media; and when the Greeks thus found their enemy in occupation of Hamadán, on their advance from Persepolis, it is not surprising that they at once identified this Ecbatana with the city of the same name, which they heard of as his first place of refuge after crossing the mountains into Media.

Perhaps, if we had the original memoirs of Alexander's captains, we should be able to unravel even more successfully the labyrinth of Grecian ignorance: with our present mutilated means, the illustration must be chiefly conjectural; and I confess that, in this part of the inquiry, I shall be more than satisfied, if I can give a reasonable solution of errors, which I regard as the only real difficulty affecting the sustained connexion of my argument.

On the dismemberment of the Persian empire, after the death of Alexander, Atropates, or, as he is often called, Atrapes, retained, of course, the government of Atropatene, which, I see little reason to doubt, then first received that title as its proper and provincial appellation.‡ It is also, perhaps, worthy of remark, that, in the distribution of the provinces of Alexander's

* Lib. iii. c. 16.

† Book xvii. c. 7.

‡ See Diod. Sic., lib. xviii. p. 587; Strabo, p. 523; Polyb., lib. v. c. 55; and Ptol., lib. vi. c. 2.

empire, both Justin and Orosius* name the government of Atrapes Media the Greater, as if it had at this time really eclipsed in strength and power the more extensive regions of Southern Media, which we know to have long continued under the administration of Pithon.

The line of Atropates continued undisturbed in their possessions for above a hundred years, and, no doubt, held their court in the provincial capital of Ecbatana. At length, however, Antiochus the Great prepared, for the first time, to bring the kingdom of Atropatene under subjection to the Syro Macedonian empire; and the account which Polybius gives of this expedition,† compared with his notice of the subsequent war between the same monarch and Arsaces of Parthia, clearly betrays his inability, even in the advanced stage which geographical knowledge had attained in his day in the Alexandrian school of Eratosthenes, to distinguish between the Ecbatana, which was the capital of Atropatene, and the other and more ancient Ecbatana of the greater or southern Media. In describing the country of Atropatene, which was invaded by Antiochus the Great, he says, that it was separated from Media by a single range of mountains, and extended northerly to those parts of Pontus which were above the river Phasis,‡ and also approached very near to the Hyrcanian Sea, thus clearly defining the province of Azerbîjân divided by the Senna mountains from the Southern Media § and including within its northern frontier all the country below the Kur and Phasis. And, again, in following the march of Antiochus against Parthia,|| he places Ecbatana beyond any question in this province, by describing it as situated in the northern part of Media, and commanding all that part of Asia which lay along the Mæotis and the Euxine Sea, whilst, at the same time, in continuing his description of the city, all the other indications of its being built on the declivity of Mount Orontes, or Elwend, of its having been from the most ancient times the seat of the royal residence, and of its possessing the palace, the treasury citadel, and the temple of Anaia, or Anaitis, which are noticed by so many other authors, as belonging to the Ecbatana of the greater Media, point out a most obvious reference to the site now occupied by the modern town of Hamadân.

It has been sometimes said, that this northern emplacement of

* Justin., lib. xlii.; Oros., lib. iii. c. 23.

† Lib. v. c. 55.

‡ Polybius repeats this indication of the extent of Media Atropatene to the north in two other passages.

§ With regard to the southern frontiers of Azerbîjân, I must observe that the early Arab geographers uniformly extend them to the line of Holwân, Dinewer, and Hamadân; and that no objection, therefore, can be taken to the position of Takhti-Soleimân, midway between this line and the Araxes, in reference to its representing the capital of the province.

|| Lib. x. cap. 29.

Polybius will not admit of explanation, even on the supposition of Ecbatana being represented by Tabriz;* but I cannot allow any weight to this objection, for if the kingdom of Dejoces and Atropates extended northward to the Caucasus, as there is every reason to believe, then the capital of that kingdom, whatever may have been its exact position, would, in a political point of view, be said to command the countries that lay along the Mæotis and the Euxine Sea.

It appears to me beyond a question, that Polybius, in his famous notice on Ecbatana, has confounded distinct notices of two different cities, that is, that he identified the Ecbatana which he heard of as the capital of the Atropatian province invaded by Antiochus, and to which he assigned accordingly its correct geographical position, with the city of the same name which was familiar to him from the writings of the historians of Alexander and his successors, and which was really taken and plundered by Antiochus the Great on his march from Seleucia to Hecatompylos. Had Artabazanes, the king of Atropatia, resisted the invasion of Antiochus, and stood a siege in his impregnable fortress, the problem of the double Ecbatana could have hardly failed of being at length cleared up; but this was not the case; the old monarch yielded at once to the terms offered by Antiochus—the Grecian army, required for other purposes, was at once withdrawn from the province—and a deeper obscurity than ever settled down again upon the name of its mysterious capital.

Little more can be gleaned from history of Atropatene, or its capital Ecbatana. The Atropatenian kings would seem to have remained tributary to Antiochus the Great during the prosperous state of his eastern empire; for his ambassadors, in their endeavours to deter the Achæans from joining the Roman confederacy, included the Medes and Cadusians among the wild and terrible nations of the East, with which they asserted the Syrian monarch was preparing to burst upon Europe.† After the death of Antiochus, in B.C. 175, the Parthian monarchs rapidly extended their conquests over all Western Asia; and Media, doubtless, with its sister kingdoms of Hyrcania and Elymais, while they continued virtually independent, still found themselves obliged to acknowledge the feudal supremacy of the king of kings. In the famous Mithridatic war, the king of Media took no active part; but when Lucullus, in prosecution of that war, led the Roman legions against Tigranes, Darius, the king of Atropatene, who had been rendered tributary to that monarch, brought a powerful contingent to the support of the Armenians, and commanded the right wing of the Armenian army in the great battle that ensued.‡ Shortly

* Williams's *Anc. Asia*, p. 60.

† Livy, book xxxv. c. 48.

‡ Plutarch in *vitâ Luculli*, and *Dion Cassius*.

afterwards, Pompey succeeded Lucullus in the command, and, after completing the reduction of Armenia and the dependent provinces, there are some circumstances which seem to render it more than probable that he entered Atropatene, and perhaps even visited its capital, Ecbatana. Plutarch, indeed, states, that from the plains of Múghán, where Pompey noted the surprising number of snakes, for which the plain is notorious at the present day, he returned to Armenia the less, and there received the friendly embassies of the kings of Media and Elymaïs;* but all authors are agreed that he exhibited Media among the other conquered nations of the East at his triumph on returning to Rome, which would hardly have been the case had he never penetrated farther into the province than the plains of Múghán. Velleius Paterculus also states, that he entered victoriously into Media.† Dion Cassius, again, describes him as taking up his winter quarters at Aspid after the Albanian war,‡ from whence he detached Afranius§ into Assyria, to drive back the Parthians from Arbela, and where he concluded his negotiations with Phraates, the Parthian king, before retiring to the lesser Armenia. And Orosius distinctly writes, that, after the reduction of Armenia and the neighbouring countries, Pompey entered Parthia, and advanced to Ecbatana, the capital city of the Parthian kingdom.|| If we might suppose that, by Aspis, or Aspid, Dion Cassius refers to the Asped-rúd, the campaign would be rationally explained. From the plains of Múghán, Pompey, declining prudently enough to lead his army into the dense forests of Tálísh,¶ would have moved by the route of Ardebíl to Miyáneeh, near the Asped-rúd, or Kizil Uzen; and here, or in the vicinity, while he was negotiating with Phraates, he may possibly have received the homage of the Atropatenian king, or, indeed, he may even from hence have visited that monarch at his capital of Ecbatana. But the evidence is too scanty to afford any certain grounds of illustration. All that I propose to show from it is, that if Pompey, in his expedition into Atropatene, visited, or had any connexion with a city of the name of Ecbatana, it must have necessarily been this capital of Northern Media, rather than the Parthian metropolis, which Orosius, misled by the identity of name, supposed it to represent. I have only farther to remark, that the son of this monarch, Darius, contemporary with Pompey, was the Artavasdes, or Artabazus, whom we find, at

* See Plutarch's Life of Pompey.

† Lib. ii. c. 40.

‡ Lib. xxxvii. c. 7.

§ Afranius is said to have met with great difficulties upon his march, and I conclude therefore that he travelled by the Rowándíz road.

|| Lib. vi. c. 4.

¶ This is certainly a more rational explanation of Pompey's abandonment of his advance on Hyrcania, than the reason assigned by Plutarch, of his being obliged to return on account of the multitude of snakes.

the period of Antony's invasion, seated on the throne of Northern Media, and holding his court in the capital of Praaspa; and I believe that I have thus fulfilled my promise of establishing an historical connexion between this city of Praaspa, or Gaza, identified at the ruins of Takhti-Soleimán, and the ancient capital of the province founded by Dejoces the Mede.

There are still, however, a few points of evidence to be drawn from the geographers which are worthy of being noticed, as they serve to show that, in compiling from the works of others, they stumbled occasionally upon the name of the Atropatenian capital, and employed the evidence relating to it, whilst they probably remained in ignorance of its true application.

Eratosthenes, the keeper of the Alexandrian library under Ptolemy Euergetes, was the first, it is well known, to introduce a systematic arrangement, on principles of approximate correctness, into the geographical science of the ancients. The foundation of his system was the protraction of an imaginary parallel between the 36th and 37th degrees of latitude, from the pillars of Hercules, at the western extremity of the line, to the further limit of Asia upon the east; and upon this parallel, which was called the Diaphragm of Rhodes, he proposed to mark off the longitudinal measurements of the known world. It does not enter into the object of the present inquiry to analyse the means which he employed for the valuation of these measurements in stadia. It is sufficient to observe, that his protraction of the line of the diaphragm was verified at many points by the observation of the solstitial shadows, and that a degree of moderate correctness is thus perceptible in the general preservation of an approximate equality of latitude. The pillars of Hercules, the southern coasts of Sicily, Peloponnesus, and Attica, Rhodes, the Gulf of Issus, Thapsacus, on the Euphrates, and the passage of the Tigris, at Niniveh, will none of them be found to vary many minutes from the assumed parallel of $36^{\circ} 21'$. "Beyond this point," says Eratosthenes, "the line was drawn in succession through Gaugamela, the river Lycus, Arbela, and Ecbatana, along which road Darius fled from Gaugamela, and so on to the Caspian gates, the entire distance from Thapsacus, on the Euphrates, being 10,300 stadia."*

Now, independently of the allusion to the flight of Darius, which I have already endeavoured to show must have been by the Rowándiz road to the Atropatenian Ecbatana, a reference to the map will at once show us the necessary application of the Ecbatana of Eratosthenes to this emplacement, rather than to the southern position of Hamadán. Hamadán is $1\frac{1}{2}^{\circ}$ to the S. of the

* Strabo, lib. ii. p. 79.

diaphragm, and above 1° S. of a right line, drawn from Niniveh, to the Caspian gates, while the latitude of Takhti-Soleimán is within a very few minutes of the assumed parallel; and the place, moreover, is upon the direct line connecting the two points. Eratosthenes, doubtless, computed the valuation of his longitudinal distances from the itineraries of travellers, and the recorded marches of armies; but, in determining the line of his great diaphragm, everything tends to prove an attempt at scientific accuracy; and although, therefore, one great line of communication did in reality lead from Niniveh, by Hamadán, to the Caspian gates, yet that, in illustrating a great geodesic measurement, he should have referred to this circuitous track in preference to another route, which was also travelled nearly in a direct line between the two points that he wished to connect, appears to me altogether contrary to reason. Perhaps, if we could test the relative applicability of his measurement of 10,300 stadia between Thapsacus and the Caspian gates, to the two routes conducting to that point by Hamadán and Takhti-Soleimán, the indication to the latter site would be more marked and decisive; but I confess, that neither can I assure myself of a correct standard for the evaluation of his stadium, nor can I, upon so long a line, ascertain the road distance with sufficient accuracy to obtain grounds of any value for a comparative estimate. Another author, whom I propose to examine, is Strabo. It has been conjectured that this writer was ignorant of the true position of the Median capital, from his omitting that definite information with regard to relative distance from other places with which he usually illustrates his geographical notices;* but the existence of two Ecbatanas will perhaps more reasonably suggest that, as he assumed a reference to one place in all the various allusions to a city of that name, which he met with in the many authors that he consulted, his caution preferred a total silence on the subject of geographical position to the perplexity of statements directly contradictory; and the same clue, also, will resolve the ambiguities that attend his incidental mention of Ecbatana in several passages of his work. Thus, where he directly describes Ecbatana as the capital of Media Magna, he, no doubt, alludes to the site occupied by the modern city of Hamadán;† but, in all his general geographical notices, the position of Takhti-Soleimán will far better suit his indications. "The greatest part of Media," he says, "is composed of cold and elevated regions. Such are the mountains situated above or to the N. of Ecbatana, and those which adjoin Rhagæ and the Caspian gates. Such, in one word, is all the northern part of Media, extending as far as Matriana and Armenia. That part of

* Williams's *Anc. Asia*, c. 67.

† Page 524.

the province situated below, or to the S. of the Caspian gates, contains low ground and valleys." It possesses an excellent soil, singularly fertile in all sorts of productions but the olive, which either does not exist, or is only found small and dry.*

It is evident that Strabo here alludes to two great geographical divisions of Media, each possessing physical features of a distinct and peculiar character. The northern division, in fact, or Media Atropatene, cold, steril, and mountainous, and the southern, or Media Magna, warm, fertile, and champaign; and the Ecbatana, therefore, which is made use of to illustrate the cold and mountainous regions of the North, must obviously be the capital of Media Atropatene. This description of Strabo, indeed, I regard as a mere amplification of the passage in Herodotus, which I have already quoted, and, as in that passage, the northern emplacement of the city is defined beyond a liability to mistake, by the indication of the Sapires and the Euxine sea: so in this, which is drawn from it, we must necessarily also infer an allusion to the same place, of which, however, it is more than probable, Strabo was himself unconscious. The mountains N. of Ecbatana, I conceive to be Sehend, Sevilán, and the many branches thrown off from the great Kurdistán range, or in some instances, perhaps, that range itself. It is needless to observe that there are no mountains whatever immediately to the N. of Hamadán. In two other passages I also recognise the same application to the northern Ecbatana, rather than to Hamadán. "Mount Abus," he says, "from which the Euphrates and Araxes flow, the one eastward and the other westward, is near the road that leads to Ecbatana, by the temple of Baris:"† and again in his quotation of the opinion of Polyclitus, regarding the floods of the Euphrates and Tigris, we find, "the highest mountains are in the northern parts above Ecbatana; as they stretch towards the S., they diverge, extend themselves, and become much lower.‡ Nothing decisive can, of course, be drawn from either of these notices; but the Ecbatana route near Mount Abus, now called Bín Gól,§ would seem to allude to the high road by Báyzid and Tabriz, which Antony followed to Phraaspa; and the high mountains N. of Ecbatana, in thus repeating the expression of Herodotus, can only be reasonably explained by a reference to the Atropatenian capital.

The last author, whom it is of any importance to notice, is

* Lib. xi. p. 525.

† Lib. xi. pp. 520, 531. This temple of Baris has sorely puzzled the heretics. I almost suspect that the passage *τὸν βασιλῆος ναόν*, refers to the famous fire-temple in the Baris of Ecbatana, and that the expression is used to illustrate the site of the capital rather than of the line of road.

‡ Page 742.

§ Saint Martin, tom. i. p. 39, 43; lit. "the thousand lakes."

Ammianus Marcellinus. In describing Adiabene, or Assyria proper, he writes, that, "in this province, is the city Ninus, which formerly possessed the empire of Persia, still bearing the name of Ninus, the husband of Semiramis, formerly a most powerful monarch; and Ecbatana, and Arbela, and Gaugamela, where Alexander, after the various risks of war, crushed Darius in a successful battle."* Now, as Ammianus, accompanying the retreat of Jovian, actually marched by the confines of this province of Adiabene, his geographical evidence would naturally be expected to be almost of a decisive character; experience, however, has proved, that, except upon the immediate line of the Roman military operations, his indications are of little value. In his general Asiatic geography, the servility with which he has copied from Ptolemy is notorious; and, indeed, in all cases, I think beyond the sphere of his own personal observation, his pretended description of the Persian provinces will be found nothing more than a bare recapitulation of the great names of history. Thus, in the present instance, the defeat and flight of Darius had united and immortalised the names of Gaugamela, Arbela, and Ecbatana; and, as Ammianus must have been aware that the city, where the fugitive Darius had first attempted to rally his broken troops after the battle, could not possibly be represented by the remote position of Isfahán, which he had been erroneously led to identify with the Ecbatana of Media Magna, he seems with a nearer approach to truth than might have been expected, to have imagined an Ecbatana in the Kurdish mountains to suit the historical indication. I cannot of course suppose that he was at all aware of the real emplacement of this Ecbatana, to which Darius fled after the battle of Arbela; his assigning the city to Adiabene, and mentioning the Atropatenian capital under the name of Gazaca, are decisive against this; but still his distinction of the two Ecbatanas is very remarkable, and would seem to show that he felt the perplexity of the ancient notices, and had fortunately hit upon the only way in which they admitted of a rational explanation.

I have now concluded all the historical and geographical evidence which I consider in any way essential to the illustration of the Atropatenian Ecbatana. There are, it is true, many other passages in which it would be desirable to analyse and explain the obscurity of classical authors, which has arisen from a confusion of the two kingdoms of Media, and of their similarly-named capitals of Ecbatana; but as I have already far exceeded the limits which I proposed in drawing up the present memoir, I shall reserve all other points of discussion for a future paper on

* Lib. xxiii. c. 6.

the Ecbatana of Greater Media.* A short précis then of the substance and result of my inquiry is all, I believe, that is further required.

I have shown that Herodotus describes the capital of Media Atropatene under the name of Ecbatana, with certain traits of descriptive character only applicable to the ruins of Takhti-Soleimán; that the same place is called in the Book of Tobit Charran;† which title I have succeeded again in tracing down through various fields of evidence to the time of the Arabs, by whom the city occupying the site of Takhti-Soleimán, was still named Arran, identical with Charran, in its latest stages of existence; that the ancient Persian name of Var, also attached to the castle of this city of Dejoces, was preserved in the Greek Vera, the distinctive epithet of the fortress besieged by Mark Antony at Takhti-Soleimán; that Gaza, the more familiar appellation of the Atropatenian capital, is but the translation of its ancient name Ecbatana; that Alexander and his officers, in failing to penetrate to this city, failed also to discover its distinction from the Ecbatana of Greater Media; and, that the confusion of all subsequent geography is to be referred to this source; that later authors preserve notices of Ecbatana, which can only be explained by their application to the Atropatenian capital of that name; the authors themselves, at the same time, appearing in their ignorance to refer them to the other city; that this connected series of ambiguous allusions to the Ecbatana of Northern Media continues from the point where we lose sight of the city, under a distinct and positive form of evidence, up to the period when the capital having changed its name, becomes familiar to the Romans, under the title of Gaza; and here I close the most ancient, and, consequently, the most difficult part of the inquiry.

The next stage of the inquiry takes up the argument at the period of Antony's Median war; it connects all the notices which occur in classic authors of the Atropatenian capital, between this era and the extinction of the Parthian monarchy; it assumes, as a natural inference, strengthened by an accumulation of inductive evidence, all tending to the same point, that this capital must ne-

* The present inquiry is of course incomplete without this supplement; for the great argument in favour of a distinction of two Ecbatanas, is the inapplicability to the northern emplacement of Takhti-Soleimán, of all the historical evidence of Alexander's campaigns. I can only say here, however, that I consider all the notices of Ecbatana which I have not already, reversing the order of the argument, specified, to refer to the position of Hamadán.

† Perhaps it may be thought that, considering the apocryphal character of the book of Tobit and the geographical irreconcilableness of the Greek and Latin versions, I attach an undue weight to the authority; still, however, the Latin version was in existence before the time of St. Jerome, and the evidence therefore, as far as regards the name of Charran and the equi-distance of 11 stages from Rhages and Niniveh, ascends at least to the third century of Christ.

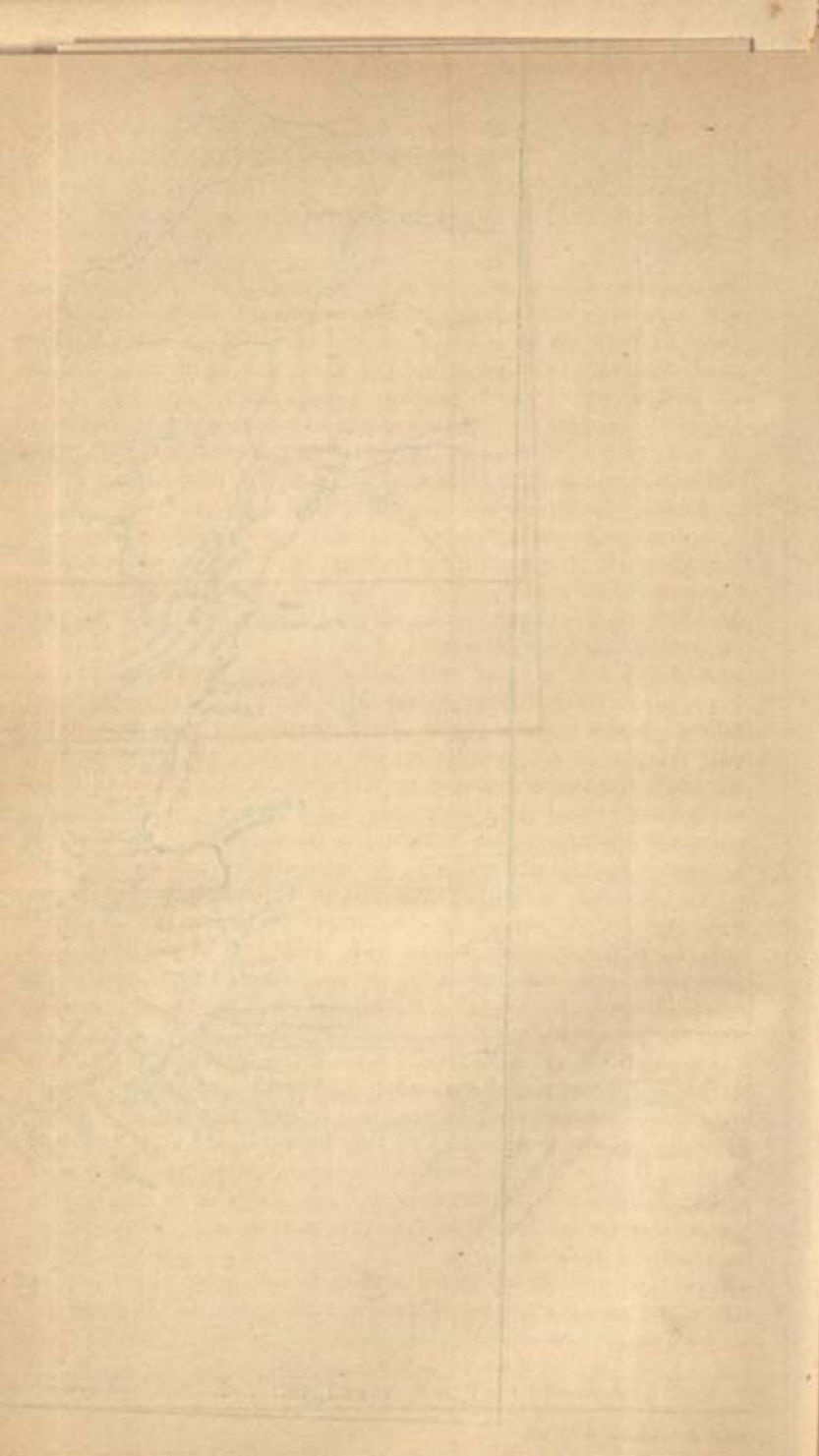
cessarily occupy the same position as the one which has been hitherto traced under the name of Ecbatana; and, in showing the application to the site of Takhti-Soleimán, of all the recorded measurements and all the illustrative evidence of the period, it, at the same time, verifies the preceding argument, and passes on the great question of the identification of the Ecbatana of Dejoces to the more tangible epoch of the Sasanian dynasty.

In the third stage of the inquiry the great object is to establish a connexion between the Byzantine account of the Atropatenian capital, and the Oriental notices of the same city; and this is effected by showing the events assigned by one party to Canzaca, to be described in the annals of the other, as occurring at the great city of Shíz; and by detailing the evidence common to both parties, of the famous temple that contained the most sacred fire of the Persians being situated in this city of Canzaca or Shíz, which was the capital of the province of Azerbáján. There are, besides, several measurements and other traits of evidence in this period of history, which uniformly accord in their applicability to the site of Takhti-Soleimán, and thus tend most forcibly to strengthen and consolidate all the preceding parts of the argument. The inquiry is then brought to a close by the verification of the position of the Arabian Shíz in modern geography. The detailed account of this place which I have extracted from the work of Zakariyá Kazvíní, compared with my own personal observation of the ruins of Takhti-Soleimán, cannot leave the shadow of a doubt as to the identity of the two places; and I believe that, in the connexion and result of these four points of analysis, a difficulty is thus solved, which for want of a little attention and a correct topographical knowledge, has continued to the present day the great problem of Asiatic Comparative Geography; and which, in the obscurity which it has hitherto cast over the map of ancient Persia, has presented one of the chief impediments to the spread of this interesting and instructive science.

Baghdád, 22nd May, 1839.

Map of
GUAYANA.
to illustrate the route
of
R.H.Schomburgk Esq^r
1840.





III.—*Report of the Third Expedition into the Interior of Guayana, comprising the Journey to the Sources of the Essequibo, to the Carumá Mountains, and to Fort San Joaquim, on the Rio Branco, in 1837-8.* By R. H. SCHOMBURGK, Esq., Corr. Mem. R.G.S.

THOSE who take an interest in the geography of British Guayana will remember that on two former occasions I ascended the Essequibo to William IV.'s Cataract, and explored the rivers Berbice and Corentyn, a detailed account of which may be found in volumes six and seven of the "London Geographical Journal." The object of the present expedition was to examine the Essequibo to its sources, and to connect my journeys from the east with those of Baron Humboldt at Esmeralda, on the Upper Orinoco, who in the year 1800 reached that point from the west.

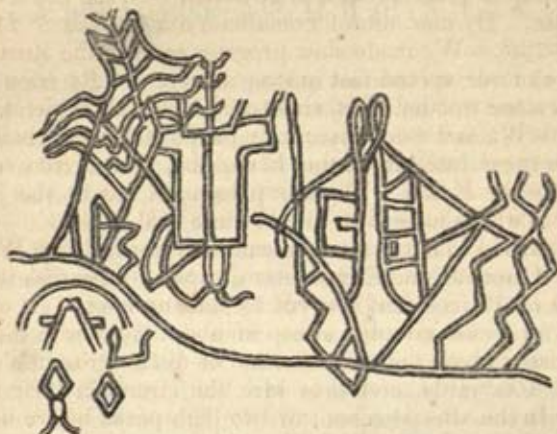
Immediately on my recovering from an attack of yellow fever I made every preparation for leaving the colony; and having re-engaged the valuable services of Mr. Vieth, as assistant naturalist, Mr. Morrison as draughtsman, Mr. Le Breton, who took charge of our commissariat, and several of my faithful Warrau Indians as part of my boat's crew, we quitted George Town on the 12th September, 1837, in my friend Mr. Arrindell's schooner, and, sailing up the broad expanse of the Essequibo, soon reached the post Ampa, about 30 miles up on its eastern shore, where in a few days, thanks to the kind exertions of Mr. Crichton, the post-holder, we completed our crews; and I was fortunate enough to enlist my old companion Peterson as my coxswain.

Sept. 21st.—This morning we were fairly under way. Our party consisted of four Europeans in three corials. It is unnecessary here to repeat the description of the scenery. I need only say that it exceeds rather than falls short of the usual richness and luxuriance of tropical vegetation; amidst which the majestic *Mora*, the stately *Sawari*, and the *Cecropia*, or trumpet-tree, are pre-eminent.

On the 1st October we landed at the Cumuti, or Taquiara rocks, which I climbed, and found the height of these masses of granite by measurement to be 160 feet, thus fully confirming my estimate of them on my first ascent of the Essequibo, which had been doubted.* On one of the rocks, as we climbed, a Carib pointed out some Indian "picture writing," which was more regular than usual, and has a resemblance to the sculptures found just to the eastward of Ekaterinburg, in Siberia, near the sources of the rivers Irbit and Pishma, tributaries of the river Tura; and at Dighton, near the banks of the Taunton river, 12 leagues south

* Journal, vol. vi. p. 231, Editor's note.

of Boston, in the United States of America; and to which some antiquaries have ascribed a Phœnician origin.



Indian "picture writing" at Cumuti, on the Essequibo.

Whatever may be their real origin, the subject is one of high interest, and demands examination: in this part of South America I have myself traced these inscriptions through 700 miles in long. and 500 in lat., or scattered here and there over an extent of 350,000 square miles. Many of them I have copied, and it is very desirable that, until some further light is thrown upon the subject, no opportunity of obtaining copies of these characters should be lost.

By the 16th October we had reached the junction of the Rupununi, upwards of 200 miles from the coast. My mountain-barometer here showed 320 feet above the sea. Ascending this stream in a westerly direction for about 30 miles, we formed our camp on its southern shore, at the mouth of the Roiwa, while I pushed on to the Macusi settlement at Annai, near the mountain of that name, to procure cassada bread, as all our stock had been lost by the upsetting of a corial, and fever had begun to show itself to some extent among our crew.

Oct. 24th, 25th.—On my return we commenced the ascent of the Roiwa in a S.S.E. direction, its course for 30 miles running nearly parallel to the Essequibo, at an average distance of 15 miles: its width is here 300 yards, its depth 12 feet; the colour of the water muddy yellow; and its current $4\frac{1}{2}$ miles per hour: the banks of the river about 20 feet high: the vegetation was much the same as before, but few orchideous plants: a beau-

tiful lilac-flowered bignonia hung down in large clusters; and the pretty *Inga latifolia*, with its splendid purple flowers, enlivened the dense and dark foliage of the forest. We halted for the night near a group of granite rocks, well coated with the black oxide of manganese. By mer. alt. of Fomalhaut our lat. was $3^{\circ} 44' N$.

27th—29th.—We made slow progress against the stream, particularly as fever spread fast among my crew. At noon we saw before us some wooded hills, about 200 feet high, which extended from E. to W., and were apparently part of the same chain which cause the great cataract on the Essequibo, distant from us about 25 miles to the E.S.E. Our camp to-night was at the junction of a stream which joins from the W. in $3^{\circ} 23' N$. lat.

30th, 31st.—The river now assumes a general S.S.W. direction as you ascend, and forms several rapids; otherwise its depth is from 9 to 12 feet, and current $1\frac{1}{2}$ mile an hour. At one spot it makes an almost circular sweep of about 2 miles in diameter; and the natives have cut a small canal or ditch across the isthmus for about 100 yards, and thus save the circuit in their smaller canoes. In the afternoon we saw two high peaks before us, about 12 miles distant, in the W.S.W., which our guides named the mountain of Ataraipu, one of the greatest natural wonders of Guayana. We soon after reached the junction of the Guidaru, a small but rapid stream, 30 yards wide, flowing from the S.S.W., which we entered, and continued up its course against a current at times $5\frac{1}{2}$ miles an hour, which obliged us to give up our paddles, and to push the canoe along with poles. By means of four stars the lat. of junction of the Roiwa and Guidaru is $3^{\circ} 18'$: in former maps this has usually been laid down 12 miles farther north.

Nov. 1st, 2nd.—The river presented no interesting feature: in lieu of high forest-trees we found only low bushes, above which the tall slender tree called "Long John" by the colonists (*Triplaris Americana*, Willd.) rises to the height of 50 feet before branching out into a pyramidal head: its flowers are insignificant; the segments of the calix, however, continue to grow after the petals of the female flowers have dried up, and change in their growth from green to white and vermilion, and become so attenuated that the branched nerves are easily perceptible. The risps are dense, and the tree now presents a beautiful appearance; and to one unacquainted with the contrary would seem to be covered with white blossoms, tinged with red, among which its dark green leaves are almost hid. This tree is infested by a very venomous light-brown ant, which lives in its hollow trunk, whence the Warraus call it epoahæri or ant-tree, and the Arawaks jacuna. We reached a range of well-wooded hills, about 500 feet high, which extend in an E.N.E. and W.S.W. direction: several small tributaries join the Roiwa on each side.

3rd—5th.—We arrived at a small settlement named Pukasanti, consisting of twenty persons, Caribs and Atoraïs, where we halted a few days to procure a fresh supply of cassada bread, and to recover our strength, as we were all suffering more or less from fever. I saw here several large baskets of the Juva, or “Brazil nut,” which, they told me, were gathered only at a short distance: as the tree is one of high interest to botanists, its flower being unknown, I set off immediately with a guide in a western direction. After 2 hours’ march over undulating ground, through a dense forest and numerous swamps, we reached the region of the *Bertholletia*; and if ever a tree deserved the epithet of *excelsa* it is this: the trunk rises straight to the height of 60 or 80 feet before it gives out its branches; the bark rugged, not unlike the British oak; the leaves dark green and smooth; but, alas for the botanist, not a flower was to be found. The nut is 18 inches in circumference—about the size of a cocoa-nut—and contains from sixteen to twenty small nuts, rather sweet in taste: they are the common food of the monkey, the peccari, and other animals. On our way back we found some seeds of the *Apeiba Tiburba*, which are very curious, and resemble the sea-egg: the *Apeiba aspera* is occasionally met with near the coast; but the former I have only found in the interior.

During the three days we were at Pukasanti the sky was overcast, with a strong wind from the N.N.E. The mean of the barom. was 29.53 inches, indicating a height of about 370 feet above the sea: therm. 85°; the lat., by mean of five stars, 3° 4' N.

6th, 7th.—Starting in a S.W. direction, under the guidance of an Atoraï Indian, we passed numerous erratic blocks of gneiss contorted in a very remarkable manner, and with large fragments of quartz embedded in it. We halted on one of these blocks, which was large enough for some hundreds of men to have encamped on it. The stream is much broken by rapids: on reaching that named Carabiru we encamped, and then struck off in a westerly direction for the far-famed Ataraipu, or Devil’s Rock. After two hours’ scrambling through woods so dense that we were at times obliged to clear our way with cutlasses, we ascended a mass of granite about 400 feet in height, when the magnificent natural pyramid of Ataraipu burst on our sight, raising its bare head from an abyss of dense foliage which spread around in all directions at its foot. The base of this mountain is wooded for about 350 feet high; from thence rises the mass of granite, devoid of all vegetation, in a pyramidal form, for about 550 feet more, making its whole height 900 feet above the savannah, or 1300 above the sea.



The Mountain of Ataraipu, in Guayana.

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From the summit of the hill we had ascended we had an extensive and magnificent view; at a distance of two miles rose the remarkable mass of granite just mentioned; of which, when we consider that all beyond was unknown ground, it might be almost said, in the words of the poet, that it

‘like a giant stands,
To sentinel enchanted lands.’

In the distance, range rose above range, forming an amphitheatre to the W. I recognised the blue outline of the Canuku chain; the Sacraeri mountains with their conical peaks; the dome-shaped Vivi; and the Dororú, rising out of the vast savannah, the scene of my former wanderings in 1836: to the S. were the Cara-waimi range, towards which my steps were now to be directed; while nearer the Cara-etayú raised their fantastic forms full 1000 feet above the plain.

As I gazed around on this romantic and picturesque scene, and on the striking monument of unnumbered ages, now lighted up by the rich glow of a tropical sunset, my thoughts naturally reverted to the companions and the incidents of my preceding journey, and I could not but look forward with hope, not unmixed with anxiety, towards the distant south, the object of my present expedition.

At the foot of the hill we climbed, called Hutu-cubana by our Indians, and in many of the clefts of the rock, we found numerous plants: among the more remarkable was a species of *clusia*; many *orchideæ*, of which an *epidendrum* with large umbel of bright pink flowers was the greatest ornament; *oncidium*, *monochanthus*, *cyrtopodium*, and *epidendrum*, grew in great perfection; several *cacti*, with only a few inches of soil, raised their huge limbs in the form of a candelabrum; while a more humble station satisfied the curiously-formed melo-cactus, which I had not before seen since I left the Virgin Islands: here, too, for the first time, I found the delicious *bromelia pinguin*, though the more common pine-apple is found throughout Guayana. As we scrambled through the wood we were greeted from time to time by the finest perfume, which we traced at last to a *liana*, or twiner, one of the bush-rope vines of the colonists: this sweet-smelling plant was *Ichnella brachystachya*, Benth. (Sp. n.), with white flowers, of which the largest petal was spotted with pink, growing in great clusters: its stem twisted and contorted in so remarkable a manner as well to deserve the name of “bush-rope.” We did not return to our camp till some time after dusk: its lat., by three stars, was $2^{\circ} 57'$, which places Ataraipu in $2^{\circ} 55' N$.

8th—10th.—The two following days we toiled against the stream to the S.S.W., meeting with numerous impediments, till

the morning of the 10th: we reached the brook Tene-nuaro, when we quitted our corials to continue our journey by land, sending the canoes back to the Rupununi to await our return. Our lat. here was $2^{\circ} 50' N.$: altitude 560 feet above the sea.

16th—18th.—After six days spent here we set out on foot in a S.W. direction through the forest: we crossed several streamlets flowing towards the Guidaru, and in the afternoon entered the savannahs; generally undulating ground, crossed occasionally by a low range of granitic hills, and natural avenues of the Ita palm (*Mauritia flexuosa*). At times we came upon large tracts or bands, 200 yards wide, in a W. by N. direction, of angular pieces of quartz, as regularly placed as if laid for paving; at other times we crossed a tract of granite boulders, laid in the same direction, and at a distance resembling fortifications. Near one of the most singular of these erratic blocks, named Si-ai, the last cacique of the Caribs, the celebrated Mahanarva, had once his residence. At sunset on the 17th we reached the settlement of Watu Ticaba, consisting of six round huts, and about 60 persons, where we were kindly received, although objects of great curiosity to the Wapisianas, or Wapishanas, most of whom, for the first time, now saw a white man.

The settlement is placed in the midst of granite boulders, which here, as elsewhere, have their peculiar flora: we saw the pretty *Epidendrum bicornutum*, and another orchidea, which I first found on the Corentyn, and which, as it proves to be a new genus, Dr. Lindley has done me the honour to name *Schomburgkia*: here were two species, *marginata* and *crispa*, and a few *Cacti*.

The Wapisianas are tall fine-looking men, with regular features and large noses, very different from the Malay nose of the Warrau and Arrawak; the women are rather stout, and wear their hair hanging down their shoulders. Polygamy is general, yet the children are well brought up, and obedient; nor did I ever see a Wapisiana parent punish his child.

25th—30th.—After a stay of a week here, waiting for guides, we set out this morning, nine in number, with a Wapisiana as our leader, although it was with great difficulty I could prevail on one to accompany us. Our course lay to the S.E., along a chain of hills leading towards the granite and well-wooded range of the Carawaimi mountains, the highest peak of which we crossed in the afternoon, at an estimated height of 2500 feet above the plain, and descended to our camp near the banks of the Guidaru, here only a mountain-stream. On our road we passed a large quantity of sugar-cane, almost wild, and also the arrow plant (*Gynerium saccharinum*), resembling the sugar-cane in its growth and its leaves, and highly valued by the Indians: amidst them the beautiful *Amaryllis belladonna*, with its brilliant scarlet flowers, grew in great profusion.

Early on the following day we reached a Dauri settlement (an Indian tribe belonging to the nation of Atorais) in the midst of woods and swamps, in lat. $2^{\circ} 24' N.$, and about 36 miles to the eastward of Watu-Ticaba. They are fairer in complexion, but not so muscular or so regular in features, nor so tall, as the Wapisianas. They paint their persons, with some skill, of a carmine colour, procured from the leaf of a climber called carivareru (*Bignonia chica*), which affords a colour much more prized than that obtained from the arnotto. The tribe is very small, and, I imagine, does not exceed 200 in number.

Dec. 1st.—Continuing our journey to the S.E. through swamps abounding in the slender Manico palm (*Seaforthia*) and dense woods, in which were numerous *Lecythidiæ*, including the majestic *Bertholletia excelsa*, and, from its smell, the far less agreeable *Lecythis ollearia*, we crossed several brooks, tributaries of the Guidaru, and in the afternoon, the first, running to the southward; and shortly after arrived at a Taruma settlement of sixty persons, two-thirds of which were women and girls. These people are about the middle stature, like the Wapisianas, but not so good looking. Their language differs from all the other Indian tongues I have heard: the words seem short, and the letter *a* abounds. The number of Tarumas on the Cuyuwini are said not to exceed 200, divided into five settlements; one higher up, the other three lower down the river. Our lat. was $2^{\circ} 5' N.$

4th—7th.—Early this morning we began our march to the S.E. towards the Cuyuwini, on which we were to embark and descend the stream to its junction with the Essequibo. Our track led through a forest, in which I noticed the Anni, a fine tall tree, with a prickly nut, of which the Indians make their corials; and the Juruba palm, used for holding the reed for their blow-pipes. After 3 hours' march, or about 7 miles, we came to the left bank of the Cuyuwini, here 50 yards wide, 11 feet deep, and flowing to the N.E. and N., with a current only $\frac{1}{2}$ mile an hour.

The corials in which we were to embark for a voyage of some weeks, perhaps, were the most wretched I had yet seen: the best of them was not 1 yard wide by 9 inches deep, in which my only position was to squat like an Indian; the others were mere pakasses, or wood-skins, as they are called. The Cuyuwini derives its name from *Cuyu*, the general term of the Guayana Indians for the white-headed Marudi (*Penelope Pipile*), which once must have been very frequent here, and *wim*, water. It is said to rise in the mountains about 40 miles to the S.W. Descending the stream, which is much impeded by sandbanks and rapids, and, from the flatness of its banks, very monotonous, we caught plenty of fish, and particularly of the Luganani, or sun-fish, which is excellent eating. We noticed few animals except a three-toed sloth, and this on one occasion, very contrary to its usual habits, swimming across

the river, having fallen from a broken branch. The Waccawais and Caribs eat its flesh, which they describe as fat and well flavoured, resembling the Cavia. The Indians say there are no Caimans in the Cuyuwini, but it abounds in a small species, called by the Caribs Kaikuti, and by the Wapisianas Aturi; they are seldom more than 3 or 4 feet long, and are considered a delicacy. We also saw a large Comuti snake (boa), which, gorged with its prey, lay inactive in a swamp, emitting a very offensive smell. I wounded it with a ball, when it made a rush towards us, and obliged us to retreat. It appeared about 8 yards long, and was the largest I had seen. A flock of Muscovy ducks flew over us; but they were too wild to allow us to come within shot of them. The Hanura, a large species of crane, was frequent, but so meagre that they were not worth shooting. We passed numerous erratic blocks of greenstone, on two of which we saw some Indian picture-writing. On asking the Tarumas who had done it, they replied "that women had made them long ago."

The river, as we got to the northward, made several large bends, and, after having reached its most northern point, turned for 15 miles almost due S., and held then an E. course to its junction with the Sipu or Essequibo: in lat. $2^{\circ} 16' N.$, as ascertained by mean of mer. alt. of four stars.

8th.—Early this morning we entered the latter river, just fifty-one days since leaving it to enter the Rupununi, from which our direct distance was only 70 miles! Yet from all accounts, and particularly from the lamentable tale of Mahanarva's descent of the Essequibo, from this point to the Rupununi, half a century ago, we should have failed in reaching our present position by way of William IV.'s Cataract, whereas I had now the satisfaction of seeing my canoe afloat on the waters of the Essequibo, above all formidable impediments, and with every hope of tracing it to one of its sources.

The Cuyuwini at its junction was 190, the Essequibo 180 yards wide; the average depth of the latter 22 feet, of the former 16 feet. The water of the Essequibo was dark coloured, and its current little more than $\frac{1}{2}$ mile an hour; its course to the N. and N.W. Its banks were wooded, but not with the luxuriance which is so striking in the fifth parallel: hills about 500 feet high occur occasionally on each bank, and force it into a tortuous and often retrograde course: numerous and large erratic masses of granite abound, to which the natives attach curious traditions.

9th, 10th.—Continuing our ascent of the Essequibo in a general S.W. direction, we passed the streamlet Quitiva, which joins from the S.W., and towards evening halted at the first Taruma settlement, in the Essequibo, consisting of thirty persons, on the right bank of the river, in lat. $2^{\circ} 2' N.$ On the following morning we passed more rocks with Indian sculpture upon them,

named Bubamana; above this the river spreads to 220 yards in width, and we shortly gain sight of a lofty range to the S.E., the highest peak of which I estimated at 3000 feet above the plain: it is called by the natives Wanguwai, or Mountain of the Sun; its lat. is $1^{\circ} 49' N.$ A little more to the W. is a range called Amucu, rounded in outline, and of less elevation.

10th, 11th.—We reached the junction of the small river Yuawauri shortly before noon: its general course is from the W.S.W., and it is called Casi-Kityu, or "River of the Dead," by the Tarumas: the Essequibo is here reduced to 70 yards in width. Passing the Capidiri we arrived at two Taruma settlements, one on each bank of the river, where we were detained some days in procuring a fresh supply of cassada bread, and in recruiting our health, which had suffered much from frequent exposure to a hot sun and heavy rain; the latter became almost constant after the 15th of December in the neighbourhood of the mountains, while at the savannahs during the same period the weather was fine. The natives, who had never seen white men, or Parána-gliri (sea-people), were much astonished at our cooking-utensils, but more so at my compass and its use. They call the Sipu or Essequibo Koatyang-kityu, or Coati-river.

12th—14th.—Quitting these settlements, we continued our ascent of the river in a S.W. direction, and in the course of the day passed the mountains Macurua and Pakuka, both about 1000 feet high, to the E.; the river occasionally narrowed to 20 yards, and rendered our progress very slow. In the course of the next few days we passed the Camoa or Wangu, a stream 30 yards wide, which comes from the W., and the Wapuan, with its dark water, from the S.E.

15th.—Shortly after noon we saw, to the S.S.E., the high mountains of Pirftiku at a distance of 25 miles; and at 2 P.M. quitted the Essequibo, flowing from the S.W., and entered the small river Caneruau, coming from the S.E. As all our guides agreed that the upper parts of the Essequibo were uninhabited, it was absolutely necessary that we should keep to a route where we could ensure finding provisions, as our corials were so small we could only carry enough for five days at the utmost. On the following day we marched 16 miles in a nearly S. direction, through swampy ground, wading the Caneruau several times, as it divided into numerous branches, to a Woyawai settlement. Some forest-trees having been cleared away, I obtained, for the first time, a view of the chief range of the Sierra Acarai, and, mounting the trunk of a tree, enjoyed at sunset a beautiful prospect of mountain scenery, stretching from N.E., round southerly to W. The outline was usually peaked; the ridges sharp, but densely covered with wood; the valleys appeared to extend from

N.E. to S.W. My guide told me that Kaiawako was the highest mountain in the neighbourhood, which he stated to be 2 days' journey distant to the N.W. I estimated the height of those I saw from 3000 to 4000 feet above the savannah.

Continuing our march to the southward, we followed for some time the valley of the Caneruau, till it turned off to the S.E. In the evening the highest mountain in sight, Piritiku, bore E.N.E. about 25 miles: it forms a sharp ridge, ending, to the eastward, in a peak, and notwithstanding its apparently abrupt and rugged form, was covered with wood. Lat., by mer. alt. of stars α Persei and α Argus $0^{\circ} 53' N$.

17th.—On the following day we reached the separation of waters between the basins of the Essequibo and Amazons 8 miles farther S., or in $0^{\circ} 45' N$. lat., and met with the river Asimari flowing to the southward, possibly the Ijatapu of our maps: it was here 40 yards wide, and, according the Woyawais, has its sources in Mount Yiniko, to the N.W. The valleys we have crossed were generally E.N.E. and W.S.W.: our guides avoided climbing the mountains as much as possible; and even when we did so, they were so wooded that we obtained no view: the rocks we met with were chiefly granite, and of the trap formation. Late in the evening of the 19th we reached a Barokoto settlement, about forty in number. The men are stout and well made; the forehead high, nose slightly arched, and the features regular: their heads are adorned with caps made from the feathers of the breast of the eagle, the crest of the egret, the macaw, and the parrot. Their bows were $6\frac{1}{2}$ feet long.

The night was favourable for observations, and I obtained five mer. alt. of stars, which gave the lat. of the settlement $0^{\circ} 12' S$. We had thus crossed the equator at noon, and so far had accomplished one of my chief objects in this expedition; unfortunately the rainy season had set in and prevented my extending my journey either to the E. or W.; and as the rain had already caused the streams to swell, and my journey thus far had been one of great fatigue and privation, I lost no time in retracing my steps to our corials, left at the Caneruau, which we reached on the 22nd, and embarked in order to trace the Essequibo to its sources.

The information given us by the Barokotos was that the river Dara, which they said falls into the Parasimoni, has its sources about 15 miles E. of the settlement: Mount Camuyau is the highest in that direction, beyond which to the S. the land soon becomes level. They did not know the termination of the chain to the W.S.W., but said they extended for 20 days' march, inhabited by the Harakutyabo, a savage tribe, which would not allow any stranger to cross their boundary. To the E. was a tribe of Maopityans.

The number of the Woyawais that I saw on my journey may be 150: they are of middle stature, of a lighter colour than the Tarumas; indeed in their general appearance, and partly in their language, they resemble the Macusis. The Woyawais are great hunters, and famed for their dogs: they are filthily dirty in their habits; even more so than the Wacawais, who are notorious throughout Guayana.

23rd.—Immediately on arriving at the boats we started on our ascent of the Essequibo, in a general S.W. direction, although very winding. The river flows through a rich mountain-valley, but is narrowed to 15 yards, and was much obstructed by trees which had fallen across it: during the two first days we found the current $2\frac{1}{2}$ miles an hour, running over a pebbly bottom, and about 3 feet deep. On the next day, finding we could make no further progress in our corials, we set out by land along the banks of the stream, ascending through a mountain-valley densely covered with wood.

27th.—After 3 days' painful march we arrived this afternoon at one of the sources of the Essequibo, at a spot surrounded by high trees interwoven with lianas, so much so that we could not get sight of sun or stars; but by our courses and distance, kept strictly from our last observations, it must be in $0^{\circ} 41' N.$ lat. We hoisted the British ensign, which we secured firmly to one of the trees, there to remain till time destroys it; and after drinking her Majesty's health in the unadulterated water of the Essequibo, the only beverage within our reach, we returned towards our corials.

The Sierra Acarai, which averages a height of 2000 feet above the savannah, is more densely wooded than any other I remember to have seen: at times the stream meanders at the very foot of the mountains, at others recedes to some distance; but even here the Sipu retains its peculiar characteristic of being studded with granitic boulders. Fish are very numerous; we caught several Haimura, from 12 to 16 lbs. weight. The luxuriance of vegetation in this mountain-valley is very striking, although showing a marked difference as compared with the flora of the fourth and fifth parallels. Here are timber-trees of the tribes *Laurinæ*, *Lecythideæ*, &c.; but the stately Mora tree, the *Psidium aromaticum*, and its kindred, are replaced by an arborescent Myrtle, and a highly odoriferous *Eugenia*. We were surprised at the scarcity of animals and birds, although probably no human foot had ever before trod on this spot; yet, with the exception of the smaller birds, and from time to time a single heron, or an eagle soaring on high in the air, all was still as it might be the sandy desert of Africa in lieu of the fertile valley of the Essequibo.

We found marks that the river, during the time of inundation, was 30 feet above its present level, and on our return in our corials we found it had already swollen.

30th.—We this day reached the Taruma settlement, the chief of which had travelled much among the mountains, and drew out a rough map of the rivers which rise in the Acaraï chain, and of the tribes which inhabit them: a portion of this information is laid down in my map. The Indians have no collective name for mountain: the terms Pacaraima and Acaraï, as applied to ranges, are utterly unknown. If there is anything remarkable in any particular mountain, it gets a name, and generally a significant one.

On the 6th January, 1838, we reached the mouth of the Cuyuwini; and ascending that stream, we arrived on the 10th at the landing-place of the Tarumas, where, with a joyful heart I bade adieu to the corials, having been cooped up in one for many weeks. We re-crossed the Carawaïmi mountains in a N.W. direction, with the same unfavourable weather which had accompanied us since the middle of December; and it was only after entering the savannahs on the 16th January that the weather improved. We stopped at the first settlement for a week, on account of the illness of several of the party, and then continued for three days to the N., over savannahs, to the banks of the Rupununi, where we were disappointed in finding canoes, and were obliged to wait for a fortnight while we sent for our own. We then embarked on the 15th February, and reached Curasawaka on the 20th, after an absence of upwards of three months, during which we had suffered much from fatigue and wet weather.

In order to carry into effect a detailed investigation of the Sierra Acaraï the traveller should pass the rainy season at one of the settlements on the savannahs, and with the setting in of the dry season should advance overland to the Cuyuwini, which would enable him to reach the first Woyawaï settlement by the beginning of September. In the wooded and mountainous region of the equator the rainy season begins about the middle of December, and continues until March. During this time dry weather prevails at the savannahs, where the rain does not commence till April; and while the Sipu or Essequibo overflows its banks, the Rupununi, a savannah river, is at its lowest level; the months of June, July, and half August, appear to be equally wet at the savannahs and in the mountains.

March 3rd.—After a delay of three weeks here, which was requisite to restore the party to health, we quitted Curasawaka, and ascending the Rupununi, halted at our old quarters at Annaï. The hut near Mount Annaï, where we had passed a month in 1835, and where Gullifer and Smith and Waterton had sojourned, was no longer in existence; sedges and rank vegetation supplied its place. The settlement at Monushuballi was also deserted, excepting by one crippled Carib, who recognised me immediately.

From him I learnt that the inhabitants, having nothing to live upon, had gone to visit in the mountains, and that he was left alone. He offered me a tame bird as a present; but it would have been a crime to have robbed him of his only companion. On the northern side of the hill I found a Macusi family, who received me very civilly; on leaving them I returned to our camp fatigued and disappointed at not finding my old acquaintances.

16th—21st.—Continuing slowly our ascent of the river, we met three corials, despatched from Pirara to escort the Rev. W. Youd, the first Protestant missionary to the Indians in the interior of Guayana, from Bartika Point to the promising scene of his future labours. It was gratifying to observe that two of the most anxious to do honour to him were a Macusi and Caribi, who had been brought up at the mission at Bartika Point, at the junction of the Cuyuni and Essequibo.

Owing to the shallow state of the river we found much difficulty in ascending it, and did not reach Pirara till the 21st, when I found the settlement much increased in numbers, and all the Macusis, men, women, and children, busily engaged in finishing the chapel. The missionary's house was already completed; and besides it I counted thirty huts, some of which displayed much skill in their execution. We decided to remain here till the return of a canoe, in which I had despatched Peterson, my coxswain, to George-Town to obtain goods for barter, in lieu of the stock we had lost by the unfortunate sinking of two of our corials during our ascent of the Essequibo.

The weather during the next six weeks was sultry. On the 6th April the thermometer reached 93° Fahr. in the shade: at the same time the barometer sunk to 29.316; whereas its average height was 29.450, showing an elevation of 600 feet above the sea. The prevailing wind was east.

The Macusis are a kind and hospitable tribe, and appear to be less indolent than the Indians generally: the women do much of the hard work, but are otherwise well treated by their husbands: nor did I ever witness a quarrel between man and wife while I was in the interior: on the coast, where they are debased by European vices and spirits, the Indian may be passionate and tyrannical in his conduct towards the women, but not so among his own tribe.

Seeing that we collected objects in natural history, few days passed that the natives did not bring us a bird or an insect, or a plant, or some fruits, as the pine-apple, the cashew-nut, or the fruit of the cucurbit palm. A species of cicada, which I believe to be the *Cicada tibicen*, is here very common: it is larger than that called razor-grinder by the colonists, and the sound it makes more like a sharp note of a musical glass: it is not displeasing, and may be

heard at a great distance. The sound is produced not by its proboscis, as has been imagined, but by means of a singularly-constructed tympanum, which occupies nearly half the abdomen: it is heard sometimes by day, but more usually towards sunset. The razor-grinder is a different insect from the *Fulgora lanternaria*, although it is commonly stated that this latter insect emits a sound similar to that of grinding razors.

During the night we heard a multitude of strange sounds; first the bellowing of the wild bull, which may be heard for miles; then the almost screaming voice of the frogs which inhabit the lake; the moan of the owl; and the wild *kukuru-kuru* of the goat-sucker, resembling more the voice of a quadruped than of a bird, and which before now has scared and put to flight a party unacquainted with its strange noise.

On the 14th April the weather, which had been variable, turned to heavy rain, and on the following day swarms of winged ants darkened the air, and as they fell to the ground became the prey of another large and a small ant, as well as of the lizard, and of various birds, as the strike, the roller, &c. The ant was three-tenths of an inch in length, and its wing extended from six to seven-tenths. It is, I believe, the perfect insect of the *Termes destructor*, or common wood-louse of the West Indies. On another occasion the Indians surrounded the place with fires in order to collect a large species of winged ant; its body was seven-tenths, and its upper wing an inch and three-tenths long: this is the perfect form of the insect that erects the remarkable ant-hills spread over the savannah, reaching from 5 to 12 feet in height. The following evening all the boys of the village were out shouting and chasing with sticks and palm leaves a still larger species of winged ant, which they collected in great numbers in their calabashes for food, and, when roasted or boiled, are considered a great delicacy by the Indians, and equal to the grugru worm, the grub of the *Calandra palmarum*. This latter ant was the great *Atta* or *Cushi* ant of the colonists: its body is 1 inch long, its upper wing 1 inch and three-tenths; its head, which appears as if formed of two globes, is $1\frac{1}{2}$ inch long; the abdomen from three to four-tenths thick: the insect is armed with four small spines, and strong dentated mandibles, which cross each other: its colour is brown, with black eyes. The appearance of these winged insects is the sure harbinger of the rainy season, which the frequent showers and thunder, and distinctness of the distant mountains, sufficiently indicated.

From the eminence which we occupied we saw numerous flocks, amounting sometimes to hundreds, of the *Jabiru* or *Mycteria Americana*, wading with great gravity in the swamps below: they were very shy, and difficult to get at. One that was shot stood nearly

6 feet in height, and its wings measured $8\frac{1}{2}$ feet, which in extent gives its rank next to the condor: its plumes are white, the lower part of the neck red; and its bill and head black. The young are grey, and not roseate as has been stated; their flesh resembles beef in taste: whilst at George Town a pair was brought to me from the Morocco coast, which stood 5 feet high, and were so tame that I allowed them to wander about—on one occasion much to the surprise and horror of a poor coloured woman. This bird is called Tararamu by the Macusis; Tuju by the Brazilians; and Mora coyasipa by the Arawaks, which signifies spirit of the Mora tree. A few days after our hunter shot an American stork (*Ciconia maguari*), which was the first we had seen; it appears to be a rare visitor at the lake: this bird is white with black wings, which measured 6 feet 3 inches in extent.

The month of May now approached, and we had no tidings of the return of our canoe from Demerara; the rainy season had set in, and the Rupununi had risen upwards of 20 feet. During the last few days we had been rather alarmed at the visit of several rattle-snakes, which the chilly air attendant upon the rains appears to have driven from the savannahs to the settlements; one about $5\frac{1}{2}$ feet long was found inside the thatch of a hut, and another $6\frac{1}{2}$ feet in length, the largest I have seen in Guayana, was killed under some rubbish; the latter was as thick as a man's arm, and had nine rattles: how wisely ordained that this dangerous snake should be so sluggish in its nature, or who would venture to live on the savannahs, where there are so many! We are obliged to walk with great caution on our botanical excursions, as these snakes are often found coiled up under long grass; the sound of its rattle is dull, and would pass unnoticed in most cases, particularly as it is not so loud as the noise caused by walking through dry grass; which may be a useful caution to travellers. The Indians become aware of its presence by the musky smell which it has in common with some other reptiles.

On the 15th we celebrated the arrival of the Rev. Mr. Youd to found a mission among the Indians in the interior; he was received with open arms at the settlement, and every one strove who should do him most honour. But the joy of his arrival to me was much damped by the melancholy news of the death of Sir J. Carmichael Smyth, the Governor of British Guayana; in him I lost not only a kind patron, but a firm and powerful friend to the expedition. From my first arrival in the colony till my departure on the present journey, I had ever experienced from him the same urbanity and kindness, and the same wish to forward the objects of the expedition. However desirous I might be to do so, it would not be becoming here to recite his numerous public acts for the good of the colony, but I must be permitted

to add, that under his government British Guayana prospered in a manner unparalleled at any former period.

24th.—The birthday of our gracious sovereign Queen Victoria, was duly kept in this remote corner of her dominions; and the British Union waved, for the first time probably, at Pirara. Nor could a naturalist forget that on the same day in 1695, the great Linné was born at the obscure village of Raschult in Sweden.

28th.—We set out this morning on a journey to the Canuku mountains, as I was desirous of seeing the appearance of the flooded savannahs.

After a few hours' journey in a S. by W. direction, we reached the highest point of the savannah, about 120 feet above the level of lake Amucu, and from thence had a beautiful prospect over the ground broken up into shallow valleys, traversed by numerous streams; their courses marked by the more luxuriant vegetation or the number of the tufted *Mauritia* palm. Continuing our journey to the S.W. along the water-shed or line of separation of waters between the tributaries of the Mahu and the Rupununi, we reached the village of Awara or Tacuma; and soon after the brook Quayé, which had overflowed its banks and formed a sheet of water $1\frac{1}{2}$ miles broad, and through which we were obliged to wade with the water at times reaching to the shoulder. The pretty shell *Ampullaria guayanensis* abounds here, but it can seldom be found perfect, as the mollusca is the prey of numerous aquatic birds. We halted at the Macusi settlement of Nappi-Ipiriwaki, whence we had a fine prospect of the Canuku range, among which the Nappi and Curasawaka distinguished themselves by their perpendicular walls of granite. Nappi is the Macusi name of the sweet potatoe; Ipiriwaki implies an expanse of water.

29th.—The saturated soil produces luxuriant plants; among others I remarked that splendid species of *Orchidea* (an undescribed *Vandea* perhaps *Galeandra*), which I first discovered at the savannahs on the Berbice; its scape here bears frequently from six to ten flowers, whilst at the former situation I seldom counted above four. This luxuriance was also observable in some *Habenariae*, which at Pirara had only two, but here frequently five flowers. Our journey was very fatiguing, often wading, and our feet much torn by numerous prickly *Mimosa*, palms, and sedges. Crossing through a wood, I remarked numerous trees of a species of *Amyris*, different from that which yields the fragrant resin called Haiowa, being fatter and even more fragrant; the Macusi call it Curu-kayé; the yellow Hog-plum, (*Spondias Myrobalanus*) was in season, and we found numbers of the fruit floating on the water. Continuing our journey to the S.W. we crossed the Nappi, and reached a Macusi village, situated at the

foot of the mount of the same name. In its neighbourhood I found several species of the insects *Cimex*, *Cassida*, and *Erotylus*; but one of the most remarkable which inhabits the Canuku mountains is the *Prionus certicarius*, and, as an eye-witness, I can confirm the statement of former travellers of its peculiar habit of seizing a branch of a tree or shrub between its powerful serrated mandibles, and of flying round and round with the rapidity of a windmill, till it has succeeded in sawing it quite through; the branch was nearly as thick as one's wrist, and I only saw the insect at work for about a quarter of an hour: how much longer its task might have taken before we saw it, I cannot say: when nearly cut through, the weight of the branch brought it and the insect together to the ground; but the wish of the little Macusi boys to capture it lost me an opportunity of observing its further proceedings. This *Prionus* was from $3\frac{1}{2}$ to 5 inches in length, and nearly 2 inches in breadth; its wing covers of a dark-brown, striped with reddish yellow; the saw-like mandibles very strong, and 1 inch in length; the antennæ about $1\frac{1}{2}$ inches. The larva is frequently found in the bombyx or silk cotton-tree. The hairy caterpillar of a species of *Bombyx* (*processionea*?), which we also found in the savannahs, has the remarkable property of stinging severely with its stiff hairs: one that I incautiously touched in seeking for a flower, gave me pain, which extended up the arm, and in spite of application of oil and ammonia, &c., did not leave me till the following day.

30th.—Crossing the streamlet Curasawaka, our path continued for 5 hours to the S.W., along the foot of the mountain chain, when we reached a small settlement, where a pretty-looking Macusi mother insisted upon my blowing in the face of her sickly infant, which she believed would act as a charm and restore her child to health. Crossing the streams Rinaute and Nappi, we remarked a huge block of granite about 50 feet high, which projected from the side of Mount Curasawaka: we now quitted the wood through which we had been travelling, and continued W. by S. over the savannah: the banks of all the streams bordered for 300 yards in width, with a dense fringe of palms and shrubs; we noted an extensive body of conglomerate rock which crossed the plain as a band from E. to W.: a tremendous thunder-storm occurred this evening; the mingled uproar of wind, forest, and waters was so great, that the noise of the thunder which reverberated among the mountains was almost drowned: it was an awful but magnificent scene.

31st.—This morning all was calm as we started on our journey at sunrise, but everywhere were seen traces of the strife of elements: near the stream Carutza an immense mass of rock had been hurled from the adjoining mountain, and had crushed hundreds of noble trees in its headlong course. The mountain chain became bolder as we advanced to the southward: passing

a Macusi settlement of ten houses at the foot of Mount Quariwaka, near which is a waterfall formed by a stream, which precipitates itself from that mountain, we halted at another settlement called Cumumeru, at the foot of Mount Ilamikipang, which was to be the termination of our present journey.

June 1st.—On the following morning we commenced the ascent of the mountain, partly to enjoy the prospect and partly to search for the Urari or Wurali plant in blossom: the ascent is steep and much interrupted by large blocks of granite, a mass of which towards the summit rises about 50 feet almost perpendicularly and partly overhangs, forming a distinct and characteristic feature. At a height of about 500 feet we found in a glen the first Urari plant, and shortly after many more; but although when I first saw this plant in January, 1836, it was in fruit, I now in the month of June also found it in fruit, and thus was disappointed in my search; I presume, therefore, that it blossoms twice a-year. As we ascended, that beautiful orange-plumaged bird, the rock manakin, or cabanaru of the Macusi, *Rupicola elegans* of ornithologists, became very numerous: they flitted around us so close that in one instance our guide nearly knocked one down with a stick. The vegetation was peculiar amidst the thousands of granitic blocks by which we approached the upper rocky mass; several new species of *Myrtaceæ*, the handsome *Clusia rosea*, several species of *Epidendrum*, *Pleurothallis*, *Brassavola*, *Maxillaria*, covered the aged trunks of trees, and a species of *Tillandsia* had selected the intermediate spaces between the rocks; the water which had collected at the base of the leaves, forming as it were a cistern, was so copious, that our feet got quite wet while walking through it. We now reached the solid mass, the Ilamikipang or overlying rock, as it might be translated. Its top is an inclined platform partly covered with *Pitcairniæ*, *Tillandsiæ*, and a new *Epidendrum*, with bright scarlet flowers, resembling in its leaves that species which I discovered at an earlier period at the Ataraipu. I counted four different species of *Pleurothallis* and *Stelis*.

The platform was quite moist, and where the *Pitcairniæ* and *Tillandsiæ* did not usurp the ground it was covered by a pretty running grass: but while the small area surprised us by the variety and luxuriance of its vegetation, the prospect which opened before us was unrivalled. Hitherto I had seen the savannahs only from moderate elevations, but now they presented themselves from a height of nearly 3000 feet, and the eye swept unobstructed by any object from the isolated Makarapan in the N.E. to the boundless savannahs of the Rio Branco in the W.; the rocky summits of the neighbouring mountains, cleft into misshapen masses, reared themselves on our right. A glance below, and the eye measured the abyss which extended at our feet, but the momentary shudder at the thought of a wrong step

or slip of the foot vanished at the enjoyment of the splendid view. The Makarapan mountain, visible to the N.E., presented itself almost in a line with the northern face of the Canuku mountains; from thence the forest reigned triumphant, and the boundary line between it and the savannahs was well defined. To the N. the eye was arrested by the Pacaraima mountains; a thick fringe of wood denoted the course of the Mahu; lake-like expansions of water showed the extent of the inundation, while the river Takutu, where kept by high banks in its boundary, appeared like a silvery thread woven through a rich carpet. Some peaked mountains, which appeared to rise solitary from the savannahs, closed the view to the north-west.

We did not enjoy the prospect for a long time; clouds of mist, which approached from the E., enveloped the landscape in a light but impenetrable veil, and we returned towards evening to the Indian settlement.

Aiyukante, my Macusi guide, had hurt his foot, and we could only commence our return to Pirara on the 3rd of June, and reached that village by a more direct route in the afternoon of the 4th.

The canoes which we had despatched to the coast in quest of provisions and merchandise, and which we began to give up for lost in consequence of their long delay, arrived at last on the 6th of June. I lost no time in despatching a messenger to Fort São Joaquim, informing the commandant that we were ready to remove from Pirara to the Fortoleza, where we intended to pass the rest of the rainy season. My object was to have, during that period at least, an opportunity of determining astronomically the position of that place, which hitherto had been always considered the eastern boundary of Brazilian Guayana. Our messenger met the commandant on his way to Pirara, being the bearer of letters from the commander of the military and civil affairs of the Upper Amazons, Captain Ambrosio P. Ayres, conveying in the most flattering terms his permission to reside during the rainy season at Fort São Joaquim; that he had ordered the commandant of the Fortoleza to give us every assistance, and that he had despatched his brother Senhor Pedro Ayres as his representative to receive our expedition at the Brazilian frontier.

27th.—Accompanied by Mr. Youd, we left Pirara under the escort of the commandant, Senhor Gato, and on the afternoon of the 30th arrived at São Joaquim. Senhor Pedro Ayres received us with every civility, and tendered his services to further our objects. Two comfortable houses outside of the fort were given up to us for our quarters as long as we might think it convenient.

This reception from a Government whom we knew to be at that period fully engaged in suppressing an insurrection which had

lasted for more than five years, and had therefore little leisure to pay attention to scientific objects, was more than I could have expected in my most sanguine hopes, and I feel truly grateful for the kindness and civility I experienced.

Fort São Joaquim is situated on the eastern shore of the river Takutu, a short distance from its confluence with the Rio Branco, Parima, or Urariguera. A detachment of Spaniards from Nueva Guayana arrived in 1775 by the Caroni, and the Uraricapara at the Rio Branco, and fortified themselves in the vicinity of the confluence of the river Yurumé. They were dispersed by the Portuguese, who erected, as well against the incursions of the Spaniards as against the Dutch, the boundary fort São Joaquim. It is constructed of red sandstone, found in the vicinity, and has fourteen embrasures, mounted with eight nine-pounders, in tolerable condition. It is garrisoned with a commandant and ten privates of the provincial militia. A small chapel and five houses constitute the village; and a priest visits the fortress every two or three years, to administer to the spiritual wants of the inhabitants. In 1796 two individuals, Antonio Amorini and Evora, commenced farming, in the vicinity of the fort, with fifty head of cattle; these cattle rapidly increased, but, in consequence of mismanagement, the owners fell in debt to the government, who took the farms, of which they have since remained in possession.

The farms São José, São Bento, and São Marco, in the vicinity of the confluence of the rivers Takutu and Branco, are under an administrator, who receives one-fourth of all the cattle which he brands with the government stamp. The number of cattle was stated to me to consist of 3000 head penned, and 5000 head wild, and 500 horses. I conceive these, however, to be overrated. Twenty-two cattle-minders, who are enlisted among the Indians, and are said to have pay and rations equal to a private soldier, have the care of the cattle. These men were formerly transported soldiers from Para.

The dreary time of the tropical winter was spent in São Joaquim with arranging the notes of our former expedition, and with constructing the map of the Upper Essequibo. Every opportunity which the changeable weather offered for astronomical observations was eagerly seized; nevertheless, during a stay of nearly three months they were very scarce. The results of my astronomical observations give me $3^{\circ} 1' 46''$ N. lat., and $60^{\circ} 3'$ W. long. for the position of Fort São Joaquim. The latitude is the result of 14 mer. alt. of stars N. and S. of the zenith, and the longitude of 14 distances of the moon and sun or stars: 11 of these distances are E. and 3 W. of the moon; and I have little doubt but that this position is within 10 miles of the truth, which is as near, probably, as the nature of lunar observations will admit of.

During the dry season an East wind generally prevails, and blows almost with the fury of a gale; a change to the W. or N.W. is at once an indication of approaching rain. We had thunder-storms, and scarcely once perfect clear sky and fine weather; it was only in September, when the wind turned to the E.N.E., that we had hopes of the setting in of the dry season.

LUNAR DISTANCES for the position of Fort San Joaquim in lat. $3^{\circ} 1' 46''$ North.

	App. Time at Place.	Observed Distance.	
1838.	h. m. s.	° ' "	
Sept. 2.	8 49 57	89 39 3	Saturn and ☾'s nearest limb, * west of ☾.
—	8 56 35	89 41 30	Idem.
—	9 1 34	89 43 15	Idem.
„ 7.	13 8 40	27 46 2	Aldebaran and ☾'s nearest limb, * east of ☾.
—	13 23 0	27 41 7	Idem.
„ 8.	20 44 8	107 45 23	☉ and ☾—☉ east of ☾.
—	20 51 0	107 42 33	Idem.
„ 10.	21 50 2	82 15 56	Idem.
—	22 4 23	82 10 44	Idem.
—	22 19 0	82 5 16	Idem.
—	22 26 15	82 2 20	Idem.
„ 11.	23 54 27	69 31 8	Idem.
„ 12.	0 12 0	69 22 54	Idem.
—	0 15 38	69 21 30	Idem.

Vague accounts of the Serra Grande or Carumá of the Indians, situated about 31 geographical miles below Fort San Joaquim, had long ago awakened in me the desire to visit it, and I planned with Senhor Pedro Ayres an excursion thither. They told us of a large lake with black water, in which porpoises were as common as in the Rio Branco, and it wanted only large ships sailing on its surface to make it another Lake Parime.

An observation of Baron Humboldt* that the surgeon Horts-mann of Hildesheim was acquainted with an Alpine lake on the summit of a mountain, distant two days' journey from the confluence of the Mahu (Takutu) with the river Parime (Rio Branco), made me the more anxious to visit that mountain.

Aug. 16th.—We left the Fort, and, favoured by good weather, we made rapid progress. The first reach of the Rio Branco, after it has received the waters of the Takutu, is S. 20° W. It is here about 1200 yards wide, and bordered by shady trees, beyond which are vast savannahs, and, with the mountains Wanari in the background, it affords a fine prospect.

The banks are covered with blocks of red sandstone, lying upon stratified masses of the same description, extending E.N.E.

* 'Sur quelques points importants de la Géographie de la Guyane.'—*Annales des Voyages*, Tom. ii. de 1837, p. 172. *Pers. Narr.* vol. v. p. 800.

Passing the low sandy island of Sobradinho on the left, we reached the junction of the small stream Corova or Igarape dos Gentios coming from the savannah to the E., and then the islands of San José and Retiro: the river is here about 1 mile wide. On the main shore were numerous trees of the *Parica*, a species of mimosa, the seeds of which are used by several tribes of Indians along Rios Amazon and Negro, as the Uaupes, Puros, &c., in the same way as the Otomacs and Guajibos use the bean of the *Acacia Niopo*: they are pounded to powder, and the smoke inhaled, or the powder is put into the eyes, nose, and ears, which produces a state of intoxication or madness which lasts for hours, and during which time the Indians have no command of themselves or of their passions. A general stupor succeeds, which sometimes lasts for days.

Below we had a very pretty view of the Wanari and Coitau mountains, which showed themselves between the islands Retiro and San Bento.

The stream Cacuruau, which joins on the right, has clear blueish waters. It runs for some distance parallel with the Rio Branco, having its source probably near the Muruku hills, which bear from Fort San Joaquim N.W. by W. distant 18 miles.

The river Cauambé (the Gaume of Maps) is more considerable than the former; it may be about 50 yards wide where it falls into the Rio Branco from the N.W. The prospect from this towards the south, comprising the islands Boa Vista and Caricatua, is very lovely, and the broad stream of the Rio Branco appears to wash the western foot of the Serra Grande, which shows here to the best advantage.

Three naked hills named Matitikur, from 250 to 300 feet in height, occupy the foreground; and a little farther S. was formerly a small settlement called Santa Isabel; it has been long since abandoned, but a certain Senhora Liberada, a woman of colour, has lately commenced farming here, and she received us with great hospitality.

The house of our hostess consisted of a large building, wattled and plastered over with clay, and the roof thatched with *Mauritia* leaves. In one corner stood a rude hand-loom, at which a young Indian girl was weaving the coarse cotton cloths in general use. These cottons are coloured with the clays and ochres of the country, as well as with the juice of plants, as *Chica*, *Roucou*, and the juice of a *Bignonia*, which colours blue. A species of *Salicornia*, called *Poluyo*, is used as a mordant for all dyes. The Guapés and other Indian tribes along the Rio Negro prepare salt of the *Poluyo*.

In the afternoon we walked through a wood to the savannah: in the wood I observed the largest *Cereus* or *Cactus* I had ever seen, and it deserved the name of a *Cactus-tree*, if its

structure admitted such a term. It measured upwards of 6 feet in circumference, and its trunk rose to 10 feet before it divided into numerous erect limbs, some of them 40 feet high. Indeed it represented a huge candelabrum.

The savannah did not exhibit any novelties; numerous *Parica* trees, *Curatella Americana*, and a species of *Plumeria*, which appears to be common to all the savannahs of Guayana, formed the chief features of the vegetation. The *Plumeria*, which is perhaps *P. bicolor* of Ruiz and Pavon, is called by the Brazilians *Xucuba*, and the milk is considered an excellent remedy against liver complaints.

17th.—We left the house where we had been so hospitably treated, and directed our course towards a large flock of birds which had been seen stalking along a sandbank in the river: they consisted of spurwing-plovers, roseate spoonbills, and the American stork: the two first did not await our coming within shot, but the waders were more accommodating, and permitted Senhor Ayres to fire three times at them, apparently possessing a great deal of phlegm in their constitution.

Caricatua is one of the largest islands in this part of the river. It is about 6 miles long, but of inconsiderable width. Its name signifies in the *Lingua Geral* "Left Island;" of which I could not ascertain the origin.

On entering the stream at the foot of the Serra Grande we found three fine canoes secured to its banks, which we soon recognised as those belonging to the press-gang, a most villainous-looking body, lately sent by the Brazilian authorities to press Indians for the navy. It appears they had landed here in order to continue their way overland.

Our canoe was too large to push up the streamlet; we proceeded therefore in a smaller one. The brook was winding and much overgrown, and it was with some difficulty that we made progress. The Serra Grande is generally called "the father and mother of rain," and it is said that if it rain nowhere else it is sure to do so in its vicinity; and so we found it. After a couple of hours' strong paddling we landed at Andres Miguel's. His house was not prepossessing in its appearance, and was worse constructed than many of the Indian houses. The owner was not at home; a young girl was sent in search of him, and we saw him soon after arrive, hugging Senhor Ayres as soon as he came up with us, and greeting me respectfully. Andres is considered the patriarch of the race of "the Vaqueiros" or herdsmen; to him they flock if they want advice, on him the rising generation look with respect, and father Andres Miguel's name is in every man's mouth.

By a rough measurement I found the height of the summit of the Carumá mountains to be 2100 feet above the Rio Branco.

The rain came down so heavily that we gave up all further preparations for attempting the ascent that day, and we accepted Miguel's offer of a night's quarters. In a conversation with him we ascertained that he once tried to ascend the mountain, but had never reached the top; nor had Mr. Smith been more successful, as he had been told by his compadre who served him as guide.* They reached only the fall or cascade. Miguel was, however, willing to guide us to the best of his abilities. Upon consideration it was resolved to ascend the mountain from its western side, and to follow it along the whole ridge.

18th.—We were up very early, but the weather looked so threatening that we preferred to wait the result. It proved only a passing shower, and we embarked immediately after, the old man accompanying us in a smaller canoe. We glided rapidly down; but it was noon, however, before we arrived at the Rio Branco, owing to our canoe getting foul of a projecting stump of a tree and filling, by which much of our baggage was soaked.

The Marawani joins the Rio Branco from the west; it has fine clear waters of a blueish tint like those of the Cacuruan. Mount Carumá bore from here S. 7° E. We were now so near the mountain that we plainly observed its structure, the prominent features of which were highly inclined planes of gneiss, resembling in many instances perpendicular walls, over which a streamlet formed a small cascade. Our tent was soon pitched, and, as old Miguel had arrived with the successful results of his fishing, we selected some of that delicate species of siluridæ, the yacima or tiger-fish, and handed them over to our cook to have them roasted, smoked, and stewed. Under these pleasing auspices our wreck and its consequences would have been buried in oblivion if the remembrance of it had not been awakened by a new disaster. The sun shone in full force, and Senhor Ayres intended to take advantage of it in order to dry part of his luggage. The awning of the canoe offered a good place for it, on which his clothes had scarcely been spread when a sudden gust of wind from the mountains carried the tent, with all its paraphernalia, into the Rio Branco; and before assistance could be given the whole sunk to the bottom.

19th.—We broke up our camp at dawn of day, and continued along the foot of the mountain until we reached its south-western angle. We had now a full view of the larger cascade, which must be very splendid after severe rains; its fall cannot be less than 300 feet. The soil of this mountain did not nourish any underwood, but there were many gigantic trees which over-

* Through the kindness of Lieut. Gullifer's brother I possess his MS. of the journey, and I well recollect that there were some obstacles which prevented the travellers from reaching the summit.

shadowed the large coarse-grained granite blocks which their roots occasionally grasped.

We reached a rocky plane, inclined at an angle of 40° , and quite smooth; it offered us, however, the hope of a fine prospect, and, leaving our shoes behind, we soon reached its top. The mist was still hovering over the valley, and only the summits of the Mocajahi mountains, looking like islands rising out of the ocean, were visible.

The vegetation was so strong and dense, that we were obliged to cut a passage through it with our cutlasses, and to follow the leader in a sloping direction, much to the detriment of our clothing. We had now ascended for a couple of hours, and, anxious to know whereabouts we were, we sent one of our people to a high tree: he reported that in consequence of the thick forest he could not see forward, but that he observed to our left another of those naked rocks, towards which we proceeded. The prospect from here to the S.W. was beautiful; the mountains of Mocajahi, along the northern foot of which the river of the same name meanders, with the high mountains of Catrimani to the S.W., rising upwards of 4000 feet above the plains, were the principal features. Extensive savannahs stretched to the N.W., bounded to the S.W. by the dense woods of the Mocajahi. A small pointed hillock, the most northern of the Serra Mocajahi, round which the river wound itself, bore N. 72° W., distant about 12 miles; from this point the river takes a more southern turn, and 7 miles below the mountain Carumá falls into the Rio Branco.

Having breakfasted at a small streamlet, we returned to the N. in order to fall in again with the main stream, which itself was only of short duration, as half an hour's walk eastward brought us to its end. A steep mountain closed the valley here, and at its foot we found the only level ground, comparatively speaking, which we had seen hitherto, though its whole extent was scarcely 50 feet, and here the brook had its sources, receiving its waters from the surrounding mountains, which rose about 250 feet higher on each side. We ascended the mountain which closed the valley; it was uncommonly steep, and numerous loose rocks made it dangerous for those who followed.

Arrived at the top of this hill, we were again on one of the rocky planes, but much more extensive than any of those which we had traversed before: here were a profusion of beautiful plants and shrubs with tortuous branches. Among them were lichens, ferns, a species of *Hemionitis*, and a pretty *Adiantum*, as well as grasses, which had settled in crevices where a sufficient moisture insured them growth: this is the first step towards vegetation, and vegetable soil being swept from the higher mountains by each torrent of rain, it here accumulates in time. The gorgeous tribes

of *Orchideæ*, satisfied with little soil for their sustenance, follow next; of similar nature are the *Bromeliaceæ*, and the decomposition of these thickly interwoven plants produces sufficient soil to afford nourishment to shrubs. The *Orchideæ* which I found here consisted of three species of *Epidendrum*, one of them with long stalks and large umbels of crimson flowers: the splendid *Zygopetalum rostratum*, with flowers $2\frac{1}{2}$ inches in diameter, and an *Epidendrum* which I discovered first at the cataracts of the Corentyn.

A *Bromelia* with small fruit contested the ground with the *Orchideæ*: among other herbaceous plants I observed an *Oxalis*, a *Verbena* with flowers of a vivid Cyan blue, and a flower of the cruciferous tribe resembling *Cardamine* awakened many a recollection of boyish pleasure, when the appearance of the cuckoo-flower (*Cardamine pratensis*) was hailed as the forerunner of spring.

A *Mimosa* with tortuous branches, a *Cassia* with bright yellow flowers, and a *Malpighia* with uncommonly small flowers, were equally new to me; but the most distinguished shrub was an *Eugenia*, with linear aromatic leaves and tortuous branches: it reigned paramount, and we had literally to cut ourselves a passage through its crooked branches and to continue our march in a stooping posture.

These rocks were clothed with the pretty *Gesneria aggregata* and *tomentosa*; also *Alstræmeria salsilla*, so famed for its diuretic qualities, and several amaryllaceous plants. The *Erythrina corallodendrum* grew spontaneously in the vicinity of the rocks, and the brilliant scarlet colour of its flowers contributed much to enrich the floral display.

I was walking the fourth in succession, when, on looking on the ground, I observed a Labari snake coiled up, gorged with its prey; three persons had stepped over, therefore, unaware of the danger, fortunately without touching it. To its sluggishness after its meal alone can it be ascribed that this snake, otherwise so venomous, had not injured any one: we killed it and found a frog inside.

At 5h. 30m. we reached a saddle or depression in the mountain, and selected it as our night's quarters: a small rill promised us sufficient water for cooking and quenching our thirst with a calabash of Xibé. The thermometer stood at 78° at the time it generally stands from 83° to 85° at Fort São Joaquim. The evening was beautiful, but the branches of high trees completely hid the heavens from us and prevented observations.

20th.—We continued our march at 6 o'clock, and after half an hour's ascent we arrived at the northern side of the mountain, where we had a pretty prospect of the valley below, enlivened by the small cottages of the Vaqueiros and herds of grazing cattle. A grove of Coucourit palms, through which we now directed

our course, formed a striking contrast with the Eugénias and Mimosas which we had left behind us; and though the acclivity proved steeper, not being covered by underwood, we made rapid progress, and at 8 o'clock had reached the western summit. Further eastward is another, about 50 feet higher than the western, and the depression between the two forms a saddle. We reached the eastern or highest summit at 9 o'clock, when we observed with much regret that high trees and bushes impeded an open prospect. I mounted, however, one of the trees, and got bearings of the surrounding district. The eye commanded a vast range of country. To the N.E. it was arrested by the dim outlines of the Canuku mountains, the rock Ilamikipang bearing N. 50° E. Further eastward we observed the three-peaked Saereri, and the Ursato or Cussato mountains, at the western foot of which the Takutu flows, which river is called by the Atorais and Wapisianas Butu-au-urú, and is said to have its sources at the mountains Vindiau, six days' journey from the Ursato. About 12 miles south of the mountains Ursato the Takutu receives the river Guidivau, which has its sources in the Arawasute mountains, about 40 miles S.S.E. of the Carumá, and approaches the Rio Branco in the vicinity of the latter mountain within 8 miles, but, instead of continuing its course westerly, and falling into the Rio Branco S. of Carumá, it makes a sweep to the S.E., flows along the mountains Kai-irita, and falls ultimately in the Takutu, as already mentioned. It forms, therefore, with the Takutu, a peninsula of about 90 miles in length, and its waters cross, united with those of the Branco, the parallel of the Serra Carumá again after a circuit of about 200 miles. Next to the Canuku, the Kai-irita, or Kai-iwa is the most extensive mountain-chain. Kai-irita signifies in the language of the Wapisianas "the mountains of the moon." Observed from Carumá they extended from S.S.E. to E. by S., distant about 30 miles. Several detached groups occupied the ground between the Kai-irita (which the Creoles call Serra da Lua) and the Carumá, keeping up the link between the Serras Mocajahi and Catrimani, W. of the Rio Branco, and forming at their passage through the river the falls or Cachoëiras.

The collective name of these detached groups appears to be in former maps the Serra Yauina: however, as such it is not longer known; and as the tribes who formerly inhabited these regions, the Paravilhanas and several sister-tribes of the Wapisianas, have wandered, the former to the Amazons, the latter farther E., its origin would be difficult of explanation.

To the far N. we observed the summit of the Tapaghé mountains, inhabited by the extensive tribe of Arécunas, and a large column of smoke pointed out the situation of the Fortaleza, where we knew that the Vaqueiros had intended to set the savannahs on

fire. The hills Murukú were just visible. The country farther W. was concealed by the western summit: a panoramic view was therefore out of the question; nevertheless the interesting spectacle which the vast savannahs afford, through which the Rio Branco flows, forming a number of islands, amply repays the toilsome ascent of the mountain.

Andres Miguel had visited the mountains in a S.S.E. direction, which he described as extensive and inhabited by a nation called Aroaki. If this be founded in fact, it would be a remarkable instance of the distribution of tribes, as there could be no doubt that the Arawaaks, who at present inhabit the coast regions of Berbice, Demerara, and Essequibo, wandered from the S. to the N. Baron Humboldt in his enumeration of the Indian races who inhabit the former province of New Andalusia, observes that the Pariagotos or Parias formerly occupied the coasts of Berbice and Essequibo. They have advanced therefore further west, while the Arawaaks from the south, and the Guaraunos or Waraus from the W.S.W., now occupy their place. The few Caribis who at present inhabit British Guayana say that their ancestors came from the Orinoco. A sister-tribe of theirs, the Caripunas, inhabit the right bank of the river Amazons. The subject of these wanderings is too important in the history of the Indian tribes to be dismissed in a superficial manner, and I hope to be enabled to lay it before the reader in a more detailed form hereafter.

We remained about 2 hours at the summit; the thermometer stood at 9 a.m. at 72°, while at that time it ranges generally at Fort São Joaquim from 79° to 83°. About 10 o'clock a fog passed over the mountain, and the thermometer sunk to 71° 5 Fahr.

Our descent was rapid, only 3½ hours, including all delays.

From the relation of our excursion, the reader will be informed that no lake exists at present, nor is there any ground to believe that one ever did exist.

We had now to toil against the current, and made but little progress; the night overtook us, and with it complete darkness, only lighted by the dark-red flitting light of the large fire-fly—much more brilliant than the pale phosphoric light shown by it near the coast. We paddled until 11 o'clock, and, as our crew appeared worn out, we halted for some hours at the mouth of the Igarapé da Serra Grande, and about 11 a.m. reached the hut of the Senhora Liberada.

Shortly after the canoes of the press-gang arrived; and who can describe my horror when I found that out of the 40 slaves there were only nine men, three of whom were upwards of 60 years old, and that the rest consisted of thirteen women, and eighteen children under 12 years, six of them infants? I made the strictest inquiry whether the gang had crossed the Rupununi;

but I ascertained through my interpreter that they were Wapisianas and Atoais, from the Ursato Mountains, at the eastern or right bank of the Takutu.

They remained only a short period at Senhora Liberada's; but we found that some of those who composed the gang were relations of our hostess.

22nd.—Andres Miguel not having arrived this morning, we set off after a very severe storm and rain, and at 5 o'clock in the evening reached Fort São Joaquim, where, only an hour before us, the slaving expedition had arrived. They had been quartered at the fort, and every pains were taken to make us believe that the poor Indians had abandoned their huts and fields and had followed them voluntarily. However, we found opportunity to ascertain the contrary, as some were allowed to walk about, whilst the others were kept in the fort. They paid us a visit, having ascertained that our party did not belong to those who had so grievously wronged them. With the assistance of my vocabulary I showed them that I knew a few words in their language, which caused them great joy. They assailed me now with a volume of words, but, alas! my knowledge did not reach so far: however, I understood sufficient to ascertain that they had been surprised at night, had been fired at, two huts set on fire, and those who had not been able to make their escape had been led away with their hands tied to their back. The conduct of the ruffians towards their women and children incensed them most. They brought away little children of 5 and 6 years old, and showed us that even they had been tied with their hands to their backs. An old woman, the mother of one of the young men, and grandmother of six children, had probably given offence, and she had been treated still more harshly. The eyes of her son, a handsome young Indian, flashed fire at the relation of the treatment of his mother. They told Sororeng, our interpreter, who had been summoned meanwhile, that six men, with several women and some children, had made their escape in the bustle. The attack had been made about midnight, but, as their huts had been scattered, there had not been a sufficient number to surround them. After they had secured their victims they rifled the huts, and carried away what they considered of value—parrots, spun cotton, dogs, &c. There being a number of children, the march towards the canoes proved slow, and their provisions failed; nevertheless, they were driven forward like a herd of cattle, flanked by these ruffians with their muskets loaded and primed, and on the sixth day reached the canoes at the Igarapé da Serra Grande.

I communicated these facts to Senhor Ayres, who, as he told me, had, since the arrival of the expedition, neither taken directly nor indirectly any interest in it; he would scarcely credit the relation of these atrocities. I summoned, however, my inter-

preter, and he put several questions, the answers to which showed him the truth. It was his opinion that the inferior officers wished to use the pressing of Indians for the navy as an excuse to procure young and old, in order to sell those who were not fit for that purpose to their allies. He promised to report these proceedings to his brother, the commander of civil and military affairs of the Comarca (district), and he expressed his persuasion that only those who could really serve in the navy would be selected, while the aged, women, and children would be returned: doubtless his report of the number who have been secured will prevent underlings from disposing of them.

To the traveller who should pass from the present village of Pirara to the place of embarkation on the rivulet Pirara his guides will point out a place, which evidently shows that it was once the site of human habitations. Posts on which the vestiges of fire are observable, a few cashew and arnatto trees, as well as some straggling shrubs of cotton, are all that remain of this once happy Macusi settlement. His guides will tell him that on one dark night a lawless band of kidnappers arrived from the Rio Branco, surprised the poor inmates, and, after having set their huts on fire, carried old and young away to die far from their native land in bondage and slavery. Such a fate also threatened the young mission at Pirara—how far it has been my good fortune to prevent it the reader may judge. To Senhor Ayres' humane disposition much is due; and, though the thunderbolt fell in another direction, the young English mission was saved, and it may teach the Indian that—

"Where Britain's power is felt,
Mankind will feel her blessings too."

May the moment soon arrive when the boundaries of the rich and productive colony of British Guayana shall be decided by a government survey! then only can peace and happiness be insured to those who settle on the British side of the frontier.

After the canoes had been provided with washboards to make them somewhat more roomy, the Brazilians left the fort with their spoil of human merchandise on the 25th of August. How distressing it was to my feelings, when, previous to their departure, many of the poor beings came to me and implored that I should prevent them from being carried away! Alas! my hands were tied in that respect as much as theirs when led from their burning huts! Happy for those who could wash their hands clean of the slightest participation in these iniquitous proceedings. The wailings of the parent, the cries of the innocent children, and those deep-drawn sighs of the manly breast, are registered by the "avenging angel."

Fort San Joaquim do Rio Branco, September, 1838.

IV.—*Journey from Fort San Joaquim, on the Rio Branco, to Roraima, and thence by the Rivers Parima and Mereuari to Esmeralda, on the Orinoco, in 1838-9.* By R. H. SCHOMBURGK, Esq., Corr. Mem. R.G.S.

UNFAVOURABLE weather delayed our departure from San Joaquim to the 20th Sept., 1838. With the assistance of Senhor Pedro Ayres we had meanwhile engaged six Macusi Indians from Malocca under one Cosmo, who acted as To-je-putori or chief, and a soldier also had joined the party from San Joaquim. Under a salute of seven guns, and with the best wishes of our friend Ayres and the commandant, we left the fort at noon on that day, and commenced our ascent of the river Takutu in a N.E. direction against a strong current. We pitched our camp in the evening on a large sand-bank about 6 miles from the fort. After midnight one of those severe thunder-storms, so frequent at the commencement and close of the rainy season, broke upon us with such violence that our tents were blown down, and every one fled to the canoe, which being in a sheltered position fortunately escaped the merciless fury of the storm, which only abated with daylight.

21st.—Ledges of rocks on both sides narrow the river here to about 100 yards; 200 yards beyond, the Ororopi, a fine broad stream with blue water joins the Takutu from the E. at the point where the stream turns from a S.S.E. to a S.W. course. A large tapir was seen on the bank; it took no notice of our canoe, and plunged into the river to swim across. Our Indians were in a moment paddling rapidly but silently in chase. Remiso had seized the rifle, and stood at the bow of the canoe; he touched the trigger, but only the insignificant report of the percussion cap followed, and the tapir escaped. We had forgotten last night's storm and its effect on our guns, the powder in which had got damp. An exclamation of regret burst from our Indians at the failure, and they looked wistfully at their bows and arrows, as if to say, This would not have occurred if you had left it to our management. In the afternoon the isolated mountains Muruku and Duruara bore W.S.W., and in the evening the Warami mountains, near the mouth of the Zuruma bore from our camp N.E. by N. Our course and distance to-day was N.N.W. 8 miles.

22nd.—Pursuing our ascent in a N.E. direction, we found the current to run $1\frac{1}{4}$ miles, so that our actual progress was not more than 1 mile an hour. At noon we reached the confluence of the Zuruma with the Takutu, and found by measurement its width to be 290 yards; of the Takutu 293; and of the latter, after the junction, 378 yards, which is something wider than the Thames at London Bridge. Lat. of junction by mer. alt. of three stars

3° 22' N. The Zuruma is called by the Arécuna and Macusi Indians Cotinga, and is said by them to rise 100 miles further N., at the eastern extremity of Mount Roraima, receiving the Zuruma, or Zurung of the natives, as its tributary.

23rd.—Continuing to toil to the N.E. against the stream, we passed the rivers Aramurepani and Mia, and halted on the following morning at a sharp bend of the river, where it is bounded by steep banks of indurated clay rising more than 12 feet above its present level, on which were evidences of the periodical inundations. We had here a pretty prospect over the savannahs. To the N. the Pacaraima mountains, at a distance of 30 miles, stretched as far as we could see from N.N.W. to N.N.E.; the Watuta, a small chain of hills, occupied the foreground; the Waiking-Epping or Deer Mountain, a singularly pointed hill, was a little more than 3 miles from us to the W.N.W., and the Warami bore W. by S. To the S.S.E. we saw the Canuku mountains, and among them the remarkable rock Ilamikipang. We halted at sunset at a sandy spot $1\frac{1}{4}$ miles S.W. of the mouth of the river Virua. This stream is the Manucuropa of the maps, no doubt so called from Manu igarapé, which signifies a small stream. The Indians say it has its sources in the Pacaraima range.

25th.—After watching all night in vain for observations, we started at 4 A.M., and by 6 o'clock had reached the mouth of the Mahu. The breadth of the Takutu before it receives the Mahu is not more than 192 yards, while the latter is 263 yards wide; after their junction they do not together exceed 267. The Wapisianas and Atorais, who inhabit the Takutu, call it Butuau-uru. The Macusis name the Mahu Ireng. The course of the Takutu here describes a half circle, and appears more like a tributary to the Mahu. We entered the latter river, and found its current to increase to $2\frac{1}{2}$ miles an hour at 3 miles from its mouth; it winds considerably, and during the floods the strength of its current must be much increased. In the dry season it forms several rapids at a few miles south of the junction of the river Pirara, which the Portuguese call the Pizaza. We could make little way up the Pirara, which is a mere rivulet during the dry season, and we were in consequence obliged to commence unloading our craft in order to carry our luggage over land to the Macusi village of Pirara.

Night had already approached, when we were surprised by the sound of paddles, and the unexpected arrival of one of our small hunting crafts with two Indians, whom we had left with Mr. Vieth at San Joaquim: they brought us the distressing news, received from Manaus, that Senhor Ambrosio Ayres, the commandant of the upper Amazon, through whom we had received so many civilities, had been killed by the rebel Cabanos in an

attempt to dislodge them from an island at the mouth of the Rio Madeira, where they had entrenched themselves to annoy and plunder the vessels passing up and down the Amazons.

26th.—On reaching the mouth of the Mahu I had despatched two messengers overland to Pirara, one of them the Brazilian soldier who had joined us from San Joaquim, to inform the Indians of our arrival, and to desire them to join us at the landing-place at the mouth of the river Pirara, to assist in conveying our luggage to the village. I was up this morning before any one else stirred in the camp, meditating on the melancholy news received the preceding night, and walking up and down a path before our tent which led to the village, when I perceived, first one, and afterwards four or five Indians peeping suspiciously over the stunted bushes which are scattered in the savannahs. Whilst I was wondering who they could be, my old acquaintance and guide to the Canuku Mountains, Aiyukante, stepped forth and welcomed me in their fashion, and was presently followed by five or six others. The sight of my Brazilian emissary, it appears, had awakened mistrust amongst the Indians, who suspected my message to come and assist us to be merely a *ruse* of the Brazilians to entrap them and carry them off as slaves to the Amazons. This accounted for the caution with which they were reconnoitring our encampment. A larger number of Indians had concealed themselves in a thicket, where they had spent the night. The distance from our encampment at this place to the village was 15 miles over savannahs and swampy grounds, impassable during the rainy season, and when the rivers commence to overflow. About half way is an elevated spot from which there is a fine view of the savannah, bounded to the N. and S. by the mountain chains of Pacaraima and Canuku, and only limited by the horizon to the W. On the E. side of this elevation flows the Pirara, which to the N. is joined by the Napi, the sources of which are in the mountain of the same name in the Canuku chain. At 2 P.M. we reached Pirara, and found our kind friend Mr. Youd, the missionary, in good health and glad to see us. He had just returned from an excursion to the Rupununi, on which, at Curua or Uruwa, in the vicinity of Curowatoka, he projected founding a new mission. The late cruel descimento, or descent of the Brazilians upon the defenceless village at the Ursato mountains had created a great sensation amongst the poor Indians very unfavourable to such projects. These descimentos are nothing more or less than incursions of the Brazilian militia from the Amazons and Negro to surprise the Indian settlements by night, and to carry off the inhabitants into slavery. I was at Fort San Joaquim when such an expedition arrived, which had surprised some Wapisiana settlements at the Takutu by night, set on fire

their habitations, and carried upwards of forty individuals, men, women and children, of all ages, into slavery. It may be questionable if the enslaved parties were not British subjects: whether they were or not depends on the yet undetermined line of the boundary of British Guayana. I am happy to say that many of them were afterwards liberated upon my appeal, through Don Pedro Ayres, to the authorities: some died at the Rio Negro, and others were never accounted for. An accident which befel my coxswain obliged me to make a longer stay in Pirara than I intended: this delay was the more irksome, as the weather was unfavourable for astronomical observations.

It was remarkable that while almost constant rains and violent thunder-storms made our stay at Fort San Joaquim, during the months of July, August, and part of September, very unpleasant, there should have been comparatively fair weather at Pirara, although the distance is not more than 60 miles. During my former stay of three months in Pirara, thunder-storms and those torrents of rain which mark the change of the season had been very frequent; but I watched my opportunity to make a series of observations with an excellent mountain barometer of Troughton's, which, by comparison with the register kept at George Town, gave me for the height of Lake Amucu 520 feet above the sea; the missionary's house stands 80 feet above this level.

The means during the three months were—

April	. . .	29.500 inches.	. . .	82° 3 Fahr.
May	. . .	29.410	. . .	81°
June	. . .	29.430	. . .	81°

With the aid of Mr. Youd, I here enlisted some of the natives to accompany me to Roraima, under Aiyukante, their chief, and his brother Uyamoni, who promised to be of the more use to us, as they had some influence with the Macusis who formed our crew.

When we were ready to start, I was rather surprised to see a young Macusi, who, to judge from appearance and size, could scarcely have completed his thirteenth year, press forward, to form one of our company: it appeared, on inquiry, that he had been lately married, much against his own will, though in deference to the wishes of his relations, and was anxious to join our expedition to escape from his bride.

Oct. 8th.—A little before eight o'clock this morning, our arrangements being completed, we put ourselves in marching order. As we had no prospect of meeting with any other habitations in the next three days, we were obliged to supply ourselves with provisions, &c., independently of the articles we were likely to require in our future intercourse with the Indian tribes, either for barter or for payment of carriers, guides, &c.

It was a source of much regret that the only chronometer I had with me stopped after our return from the sources of the Essequibo, my pocket-watch was, in consequence, my only time-keeper.

Our effects were packed in small tin-canisters, each of the weight of about 25 lbs., which the Indians carried on a broad band, suspended from the forehead, either plaited of the young leaves of the Ita-palm (*Mauritia flexuosa*), or consisting of a piece of the bark of *Lecythis*. To make their load quite steady, it was fixed by other lashings round the shoulders, in the way soldiers carry their knapsacks. This is the general mode which the Indians adopt, whether male or female, for carrying burdens.

As the time of our departure drew near, the Indians showed some irresolution, which it was necessary to counteract with more than ordinary energy on my part. The Macusis had been for years at war with the Arécunas, who inhabit the regions about Roraima; and although there had been no open hostilities for some time past between them, still, a visit to their former enemies, they thought, might be connected with personal danger; and some of them who a few days ago had been eager to accompany me, now required much persuasion to induce them to adhere to their engagements.

Mr. Youd was to depart the same day to visit the Tarumas, of whom I had given him a description, which encouraged him to proceed amongst them, to learn how far he might be able to turn them to Christianity. The whole village, in consequence of our departure, was in commotion from an early hour; and all who had guns and powder were firing away at daylight. As already stated, a little before eight o'clock our column was put in marching order; Peterson at the head, carrying the British union flag, under which we had been marching for the last three years, through hitherto unknown parts of British Guayana. Now it was to lead us beyond the British boundaries into regions only known to the copper-coloured Indian; but we were animated with the hope of reaching, for the first time, from this side of the continent, that point which in 1800 Baron Humboldt had, after so many difficulties, arrived at from the westward, namely, Esmeralda, on the Orinoco. Our party consisted altogether of thirty-six persons; and the Indians, in their gay-feathered head-dresses, some with muskets, and others with banners on their shoulders, set out joyously.

An hour's march, in a westerly direction, brought us to the chief arm of the Pirara at its outlet from the lake Amucu. We had to wade through it, with the water up to our necks, and the luggage on our heads in consequence. We were half an hour crossing it. Our path lay now through savannahs, in a northerly

direction. The undulating ground which occurs to the S. of the lake Amucu ceases, and the clay which forms the sub-stratum is no longer of the red colour, from an admixture of ferruginous ochre, so striking about Pirara. Those rounded and shining black pebbles also are no longer visible, which cover for miles the savannahs on the partially elevated ground. The tumuli also of the Termes of Guayana, those wonderful buildings of a minute insect, are no more to be seen. These savannahs are about 100 feet lower than the missionary's house at Pirara, and are covered, during the rainy season, with water.

A march across a savannah is at all times monotonous; and we had nothing to vary it but stunted trees and bushes. The first consist chiefly of *Curatella americana*, the latter of *Malpighia*.* At 11 A.M. we halted on a sandy elevation, extending about $\frac{1}{2}$ a mile N. and S. Such spots occur frequently in the savannahs, and are generally 4 or 5 feet higher than the surrounding plain, and interspersed with trees and bushes. They are the favourite resort of the herds of wild cattle during the mid-day's sun; for, although the foliage is but scanty, they nevertheless afford some shade, and are preferable to the open savannahs, exposed to the unmitigated heat of the sun. High above these trees and bushes generally rise numerous cacti, their purple and pear-shaped fruit looking most inviting to the thirsty traveller: it is, however, insipid to the taste, and by no means to be compared to the prickly pear (*Opuntia*) of the West India islands.

In the afternoon we reached the Mahu or Ireng of the Macusis, which we ascended to the northward along its left bank, pitching our tents in the evening on an open savannah, whence we sent out hunters in quest of deer: they returned, however, unsuccessful.

At night we were alarmed at finding ourselves surrounded by an ocean of flame; the hunters had set the savannahs on fire: black columns of smoke were rolling onwards, and the noise of the hollow stalks of the large grasses, bursting with the heat, was almost deafening. I was reminded of Cooper's beautiful and graphic account of a burning prairie.

9th.—We recommenced our march at six o'clock, and after going 3 miles reached the river Mahu, where we had to cross it, at the junction of the Unamara, from the W. The Mahu was

* Here are also a few *Rubiaceæ* and *Compositæ*: the savannahs are covered with *Gramineæ* and *Cyperaceæ*, chiefly of the tribes *Panicæ*, *Chloridæ*, *Agrostidæ*, and according to the prevalence of moisture or the nature of the soil we may trace individuals of the genera *Crotalaria*, *Linanthus*, *Coutoubea*, *Schultesia*, *Zornia*, *Hylosanthes*, *Elephantopus*, *Eupatorium*, *Latreillea*, *Unxia*, *Wulffia*, *Centrosema*, *Indigofera*, *Tephrosia*, *Hyptis*, *Gerardia*, *Cryptocalix*, *Egiphola*, *Amazonia*, *Begrichia*, &c.

too deep to be forded, and I passed it with the baggage in a small corial. Our Indians, to save time, plunged in, and swam across; but were carried far down by the current. More than two hours and a half had elapsed before we could resume our march. We then ascended the left bank of the Unamara in a W.N.W. direction, towards some bare looking hills called Wuyeh-epping; the height of which may be about 600 feet above the plain, and remarkable for a huge block of granite in one part resembling the figure of a deer, concerning which the Indians told us many marvellous stories, as also about the rock Tupanaghé, which we shortly after saw through a valley to the N.

At the foot of Wuyeh, we saw some huts abandoned by the natives, in consequence of the late descent of the Brazilians. We forded the small river Unamara again, where a ledge of rocks formed a rapid. I observed here two species of *lacis*, rather an uncommon sight in so small a river; but that delicious fish the pacu, so fond of browsing on this herb, was not to be seen. We had hitherto kept along at the foot of the southern offsets of the mountain chain; having on our left detached groups of a very desolate appearance, and to the right loftier mountains, thinly wooded as far as we could see; we were now entering upon the chain itself. A large valley was before us, bounded on each side by precipitous and rugged mountains, crowned with wall-like masses of trappean rocks, the strangeness of the forms of which did not fail to excite the attention of the Indians, who, as usual, were frightened at approaching what they believed to be the abodes of evil spirits. Our course was N.W. by W. through this valley, which was but thinly covered with grass, and bore evidences of having been lately inundated: after a turn to the northward, we entered a basin-like expanse, surrounded by high mountains, amongst which are three peaks, especially remarkable from their singular appearance. Mara-etshiba, the highest, appears to be of columnar basalt, terminating on the summit in one abrupt pillar, about 50 feet in height: a bulging out in the middle of this mass of rock has, by the ever-fruitful imagination of the Indian, been assimilated to the Maraca,* the indispensable instrument of the Pi-ai-man, or Indian conjurer. Near the entrance to the valley, and rising 60 or 80 feet above the plain, is a columnar group of trap rocks, the largest and most popular of which has been named by the Indians Canu-yeh piapa, or the Guava-tree stump. Half a mile further westward, and not quite so high, is another mass of rock, which any traveller might mistake for the trunk of some large old tree. It is a great object of wonder amongst the Indians far and near, who call it Puré-piapa,

* A large rattle made of the fruit of the calabash-tree, filled with pebbles.

"the headless tree." So complete was the illusion, that I almost doubted my guides when they told me it was of stone. The rock rises straight to a height of at least 50 feet; its sides partly covered by a red lichen; on its summit a jabiru, or stork (*Myctetes Americanus*), had built its nest, above which we saw the head of a young one. On our approach, its mother hastened from a neighbouring savannah to its protection, and, perched on one leg on the summit of the rock, stood sentinel over the plain around.*

We fixed our night quarters near a small streamlet, whence I set off to visit this singular rock. The access to it is difficult, in consequence of the numerous boulders on the ascent; with which, also, we found the summit to be strewn in confused masses. Sharp pointed rocks, many 30 feet long, and scarcely 6 to 8 inches thick, here either stood erect, or were overlying each other. They were of trap, and similar to those in the valley of the Mahu, and at St. Bernard's, in Tortola. Interspersed with these broken rocks we found *Cacti*, *Agave Americana*, *Bursera gummifera*, *Lecythideæ*, and the wild *Iatropha manihot*, amongst which the snow-white flowers and purple fruit of the *Cactus repandus* were strikingly conspicuous.

Our return to the camp was delayed by the Indians having again set the savannahs on fire, and we had some difficulty in making our way through the columns of dense smoke which for a time separated us from our companions.

10th.—Continuing our route in a W.N.W. direction over similar ground to that we had passed the preceding day, we came to a part of the range called Ina-mute, which we crossed at an elevation of about 400 feet, and descended on the opposite side into the same valley which we had followed before, and through which the Unamara flows. The Indians called the pass Mute, or 'saddle.'

In the afternoon we fell in with a hut, inhabited by two Macusis and their families, consisting of fifteen persons. One of them was a handsome young man; his face was highly painted, and his ear perforated by a piece of bamboo. He wore his hair long, and had it tied in a tail with a long cotton string, the ends of which went round his neck, and hung behind him in large tassels, ornamented with Toucan skins. His wife brought us several calabashes filled with paiwari. Proceeding on with one of these Indians as a guide, we crossed the streams Kinote and Carara, and arrived at 5 o'clock at Copoma, a Macusi settlement, where I determined to halt for a day, to procure a fresh supply of cassada. The men were absent on a hunting excursion, but the

* For a sketch of this remarkable rock see "Twelve Views in the Interior of Guayana."—Ackermann.

women and children promised a supply of cassada roots, if our own people would make the bread, which they were too lazy to undertake.

Copoma, by a mer. alt., is in $4^{\circ} 3' 40''$ N., situated in the midst of mountains, broken only by the valley of the Unamara. These mountains are, according to the superstitious belief of the Indians, the abode of all kinds of spirits and hobgoblins, and I regretted only that the little knowledge which I possessed of their language did not permit me to understand some of the many wonderful stories they had to tell me of every stone which we met on our road that was of more than ordinary size, or fantastically shaped by nature.

12th.—We started at 10 o'clock in a westerly direction, each individual being supplied with his share of the cassada, sufficient for the next three days' consumption. We now crossed the Unamara, which we were told had its sources in a swamp of Ita-palms. The previous two days we had kept the northern side of the valley: from the W. a streamlet, called the Tapirindué, flows into the Unamara, and, falling over a ledge of rocks, forms a small cataract. Here one of the Indians shot a large luganani, or sun-fish. The part of the valley which we were now entering, surrounded on all sides by mountains, only cut by the passage which the Tapirindué has opened for itself, had all the appearance of having been once a lake. And this may be also said of the valley through which, at present, the Unamara flows; or, to express myself more properly, the valley of the Unamara seems once to have formed one of the northern bays of an extensive lake, of the former existence of which the savannahs between the Canuku and Pacaraima mountains furnish strong evidences.

At some remote period, may not these mountain barriers, before they were burst through by the rivers which now flow from them to the Atlantic, have contained a mass of water, to the existence of which may be attributed the traditionary tale of the lake Parima?

Crossing a ridge of hills in the afternoon, we left the Unamara, which we had now followed to its source, and entered the valley of the Virua river, which, as we had seen on the 23rd Sept., falls into the Takutu a little before the junction of the Mahu. Though the hills were more wooded, the valleys were dry, producing only the *Agave vivipara* and some *Cacti*. A large mountain, the height of which I estimated at 2000 feet above the valley, bore W. by N. about 8 miles distant, in the direction of the river Virua, which river we crossed about 4 p.m., flowing to the S.E., where its breadth was 33 yards. Its bed was full of rocks, and contained at that time but little water; its source is said to be 30 miles further N.

In the evening we reached a hut, occupied by an Indian who had three wives and a progeny of eight children, with a prospect of more: this was a rare instance of numerous children among natives who practise polygamy. The party were wretchedly poor, without bread or corn, and almost destitute of common necessities.

13th.—We started at 6 A.M., our usual hour of march, and followed for some time, in a W. by N. direction, the banks of the Coya-ute, a tributary of the Virua. Our Indians stopped at every brook to drink: unloosing their calabashes, they steeped in them some burnt cassada bread, and made a porridge, which they drank with glee as a substitute for paiwari.

We kept the northern side of the valley, and at 2h. 30m. reached the foot of Marawa-epping, the heights of which strikingly resemble the picturesque ruins of some ancient castle: such I should certainly have taken them for had I been travelling in Europe. We stopped at the foot of Mavisi-epping, sadly tired with our march over a bare savannah, and under a scorching sun which raised the exposed therm. to 127 Fahr. at 1 P.M. The stream Mavisi has its sources among some gigantic boulders, and in its descent forms a series of cascades, some of which are upwards of 12 feet high.

14th.—Being Sunday, I had not intended to travel, but our position was much exposed to the sun, and what, perhaps, was a still stronger reason, a Macusi settlement not far off induced us to strike our tents and march in quest of it. Crossing the saddle of the Waiyamura, we entered the valley of the river Cotinga: from an elevated spot we had a fine prospect across the savannah as far as the distant Mairari range of mountains whither we were bending our course. We soon fell in with Indians, with whom some of our Macusis claimed relationship. We met them with flags flying, horns sounding, and such demonstrations of our self-importance as greatly delighted them.

15th, 16th.—We halted on the banks of the Cotinga, flowing to the S.S.E.: this river is the Cristaes of the Portuguese, in the old maps. It is generally considered a tributary to the Zuruma: the Indians, however, name it Cotinga to its junction with the Takutu, and consider the Zuruma a tributary to the Cotinga. Our camp was this night in $4^{\circ} 10' 48''$ N. lat., and 68 miles W. of Pirara. Referring to Arrowsmith's late map of Colombia, we ought then to have been at the sources of that river, instead of which it was 90 yards wide where we crossed it, and its depth from 5 to 10 feet. The Zuruma is said to join the Cotinga at about 15 miles S.S.E.

17th, 18th.—Encamped near the foot of the Mairari: this mountain is connected by a deep saddle with the main range of the Pacaraima: it is a stupendous mass of granite and gneiss,

and the lower parts alone are wooded. It is famed for a beautiful species of parroquet (*Psitticaria solstitialis*), which we saw in large flocks.

Hitherto we had marched along the first ridges of the chain; but after passing Mairari, the highest of these mountains, and which I measured trigonometrically from a base of 1144 yards, and found to be 2817 feet above the savannah, and about 3400 above the sea, in lieu of following the longitudinal valleys of the Pacaraima chain, we turned westward, following the river Muyang, one of the most considerable tributaries of the Zuruma. It had a turbulent course; numerous pointed rocks, resembling basaltic columns, obstructed its way, forming cataract upon cataract. The direction of these rocks was S. 76° E., the dip N. 7° E., at an angle of about 75° . Our path now became fatiguing in the extreme—our feet blistered and injured by the sharp-pointed rocks; but if I, who wore shoes, complained, how much more reason had the poor Indians, who were clad only with light sandals! Here we met with a serious loss: in descending a mountain-torrent to try its temperature, and in handing the thermometer to one of the Indians standing above, he slipped, and fell with such force that it was broken to pieces; leaving me with only one. In the following days we crossed the Muyang several times.

19th.—The mountain Zabang bore N. by E. about 18 miles; the river Cotinga flows past it to the eastward. Crossing the Muyang, we halted in a shady wood on its northern bank for breakfast. Heliconias and palms reigned here paramount: we cut down one of the former $58\frac{1}{2}$ feet long, an immense height for that family of plants. Further on we saw a tree belonging to the labiatæ (*Hyptis membranacea*) of much beauty, and its leaves of a highly aromatic smell. The flowers were of a bright blue, the calix lake-coloured, and the floral leaves of the spike changed from green through white into a pink colour, accordingly as the rays of light fell on them. The tree was about 30 feet high—the trunk rugged, and the wood hard. As we issued from the wood an Arécuna settlement of two houses was before us. When first observed we were mistaken for Brazilians; the women and children fled, and the men made some show of defence; but as soon as recognised, we had a cordial and noisy welcome. The Arécunas are fairer than the Macusis, and of the same make. Indeed, they call themselves a brother tribe, although they have lately been at war with each other. As far as I can judge, their language has much resemblance. There were eight men; the women I had no opportunity to number, only two ventured to approach us. Our lat. by mer. alt. was $4^{\circ} 29' N$., and by our reckoning we were 103 miles W. of Pirara. Before us we saw a

remarkable ridge of mountains differing widely in appearance from those we had seen before; they extend E. and W., and, in lieu of pointed summits, were flat at the top, though rising perpendicularly; they consisted of red and white sandstone.

20th.—Continuing our route to the N.W. towards the sandstone range of Humirida, we crossed several brooks, tributaries to the Muyang. The valley through which it flows from its sources was closed by wooded mountains; the sandstone ridge was still 5 miles distant, when we halted at the foot of mount Kinotaima, to prepare for its ascent. For the first hour our road passed through wood, and it took us another hour before we reached the summit, which I estimated at 2000 feet above the valley, and about 3000 feet above the sea. From this spot we had a magnificent view of mountain scenery to the west; Erimatebuh bore W. 10° S.; Mareppa Emba, resembling a tall spire on the roof of a church, rising 3500 feet above the savannah, bore W. 20° S., distant about 30 miles; Ucaraima W. 30° S., and the bare granite mass of Mairari S. 42° E.

We continued our march upon table-land, only interrupted by soft, undulating hills. The vegetation was here very interesting to a botanist; numerous *Orchideæ*, chiefly species of an *Epidendrum*, which I found for the first time at Ataraipu, with large umbels of a pink colour, and a variety of the same with white blossoms edged with rose, as well as another the stem of which was upwards of 8 feet high, ornamented the mountain savannah. I was much gratified to find here the first arborescent fern I had seen in the interior of Guayana: it was a *Cyathea*, and its stem rose 15 feet high before it threw out fronds.

At 2 P.M., we crossed the Yawaira flowing northwards, and a tributary to the Caroni; we had entered, therefore, the basin of the Orinoco, which is divided from that of the Amazons by the ridge of sandstone mountains which we had just ascended. The Yawaira, or Tiger river, may be considered its most south-eastern affluent. It was about 13 yards wide, and, according to the Indians, it falls through the Wairing and Cukenam into the Yuruani, which is an eastern tributary of the Caroni.

These regions of sandstone have their own Flora. Every shrub was almost new to me; except some melastoma, very few were in flower. If it were possible to transplant a botanist among these bushes, without his being aware to which part of the world he had been conducted, the rigid leaves and tortuous branches would cause him to fancy himself in New Holland, among the *Melaleuca* and *Proteaceæ*. The most attractive was a shrub with rigid leaves, and a rose-coloured flower like a simple *Camellia*, until a nearer inspection proved it to be a *Kielmeyria*. Interesting as this shrub was, it could not vie with an *Orchidea*, doubtless the tallest

yet described, and which, for the gracefulness of its stem, the splendid configuration of its flowers, and its aromatic smell, is perhaps not equalled among this most singular and most fragrant kind of plants. Long before we reached it the eastern breeze wafted the delightful odour towards us, and I looked curiously from side to side to discover the source of this fragrance; at last I espied flowers, white as a lily, which, on graceful stems, rose above the surrounding shrubs. I hesitated to pronounce it an *Orchidea*—strange and eccentric as this tribe is in its forms, but on coming nearer, no uncertainty was left, and it proved to be one of the most beautiful of its class, and has since been named *Sobralia Elizabethæ*, in honour of her royal highness the Princess Royal of Prussia.

At an abandoned settlement we got the first view of those remarkable mountains, of which Roraima is the highest. They were wrapped in dark clouds, and distant about 40 miles in the N.N.E.

Crossing the Yaiwara, we travelled to the N.N.W. On emerging from a wood we had another view of the Roraima range; and shortly after halted at an Arecuna settlement, where we resolved to stay some days.

The night proved very cold, the thermometer standing, at 6 o'clock, at 61°; all shivered as if the cold had been below the freezing point. Numerous Arecunas arrived in the course of the day from the neighbouring settlements; they had heard of our arrival, and in the evening there were between sixty and seventy strangers round our tents, looking with wonder at us and the different objects of our baggage. They behaved very orderly, and were by no means forward. A severe thunder-storm, which raged about sun-set, dispersed them; but at our evening prayers they were silent spectators.

21st—23rd.—The most striking object in the landscape is Roraima, which, at the distance of 35 miles, appears like a dark wall capped by clouds. We started this morning on our projected tour to the Crystal mountains, and ascending a densely wooded hill in a southern direction, and following a limpid brook, we entered a mountain savannah, while before us rose Pa-epping, or Frog-mount. The sandstone here showed itself in horizontal beds, strata lying E. $\frac{1}{2}$ N., and formed terraces in the declivity of the hill, which we now descended for about 200 ft., when our guides stopped at a small hillock, which they pointed out as the Crystal mountain, and indeed the upper surface was covered by numerous rock crystals, much weathered from exposure, and comparatively of small size, the largest being of one inch in length. The Arecunas say, that formerly there had been some of four or five inches in length, and clear as water; but the Portuguese had carried them all away.

Nicolas Hortsman, I think, was the first who made the existence of these Crystal mountains in Guayana known to Europeans.

On our return, we had another visit from the neighbouring Arecunas; they were good looking men but painted, and wore pieces of bamboo fixed through their nose and chin; in lieu of ear-rings, they had bird's heads, chiefly those of the humming bird, and a small creeper of a brilliant blue colour. Round their loins they wore a girdle of monkey's hair. Our lat. by two observations was $4^{\circ} 35' N$.

25th.—At 7h. 30m. A.M., set out on our journey to Roraima; crossed to the right bank of the Yawaira, and travelling N. passed the junction of this river, with the Wairing 1 mile to the W.S.W. The peak of Zabang bearing E. by S. towered high above the other mountains in its vicinity.

At 10h. 30m. halted at an Arecuna hut on the left bank of the river Cukenam, which I estimated at 30 yards wide; its banks, though 20 ft. high, are overflowed during the wet season. It comes from the N.E., and at $1\frac{1}{2}$ mile distance to the west is joined by the Wairing, whence it turns off N.W., towards the Yuruani, which it joins at about 25 miles distance, according to Indian information. Following the Cukenam upwards in a N.E. direction, and fording numerous streams which rushed from the mountains on our left to join it, we again crossed the river, and reached another Arecuna settlement. Here we found a feast prepared for us, as messengers had announced our coming, and we met with a most hospitable reception. Feasting and dancing by the natives, dressed in their gayest ornaments, lasted the whole night; and the constantly-repeated burden of the song, of "Roraima of the red rocks, wrapped in clouds, the ever fertile source of streams," resounded in my ears the whole night, and haunted me even during the little feverish sleep I was enabled to get. On this occasion there were at least 80 natives present, which, with our own party, 44 in number, made quite a crowd for these regions. There was a grand display of gorgeous plumes and head-dresses, and the whole winged tribe apparently had been put in requisition to furnish forth the most brilliant of their feathers. Besides these, necklaces of monkey teeth, peccary teeth, and porcupines' quills, to which were attached long cotton fringes hanging down their backs, and suspending squirrel, toucan, and various other skins.

Among the strangers was a Sarrakong, from the Mazaruni. He told me it was a journey of 7 days from Roraima to his settlement on the banks of the Mazaruni. I inquired about the Cumarow, anxious to have some point with which to compare my observations with those of Mr. Hilhouse; he told me it was 3 days from his place to the Cumarow, and that the road to the Mazaruni passes by Roraima. The chief of the tribe gave me

the same information; and it was afterwards corroborated by the Arécunas, near Roraima, who pay frequent visits to the Sarrakong. This man gave me the following itinerary:—Leaving their settlement, Arawayam, they travel the 1st day to the Maurisi, an affluent of the Yuruani; on the 3d day they reach the Cuyara, where it is navigable for small craft; on the 4th they reach the river Cako; on the 6th, the Mazaruni; and the settlement of the Sarrakong on the 7th; from whence it is 3 days further to the Cumarow. The 1st, they reach the Yaraica, an affluent of the Mazaruni from the E.; the next day the Zinauwaru, and the Cumarow on the 3d. Calculating the ordinary rate of their travelling, and making allowance for the winding of its affluents, the nearest part of the Mazaruni cannot be less than 50 miles in a N.E. by E. direction from Roraima, which gives a difference of 28 miles in lat., and 42 for departure. Now, I found the lat. of the E. end of Roraima to be $5^{\circ} 9' 40''$ N.; and the point where the road from Roraima cuts the parallel, would be about $5^{\circ} 37'$ N., whence it is still 3 days to the Cumarow, in a N.N.E. direction. If I am not mistaken, Mr. Hilhouse places the Cumarow cataract in $5^{\circ} 12'$ N. I agree, therefore, much better with him in its longitude than in its latitude.

26th.—Followed the southern foot of a range of sandstone hills, remarkable for their resemblance to fortifications on a gigantic scale. We crossed the river Wene, and then turned N., and ascended about 300 ft., whence we saw Mount Zabang to the S.E., and the remarkable range of flat-topped sandstone mountains of Roraima, more resembling basalt in their outline, rising like a wall in the N.N.E.; passed over the saddle in Amauparu, so cleft and rugged in its structure, and so steep in ascent, that we were obliged to tread in the exact steps that had been worn, or perhaps cut out by the Indians. After descending, we halted at the foot of Mount Waramatipu, a wooded hill 700 ft. high, which, from its dark foliage, appears almost black as seen in contrast with the light-coloured mural precipice of Roraima.

27th.—Shivering with cold, the thermometer being at $58\frac{1}{2}$, I awoke, and found the Indians crouching round the fire. Started at sunrise, and continuing our journey to the N.N.W., at 11 o'clock we reached a settlement of Arécunas, called Arawayam Botte; unlike the other Indian settlements we had seen, it was enclosed or barricaded. It consisted of 3 square houses, with gable ends, and a round cabin. The natives informed me, that further towards Roraima we should find no inhabitants, as their neighbours were gone on a journey. We were detained here 8 days by bad weather, during which time I only got two observations, which gave our lat. $5^{\circ} 4'$ N. The mountain of Roraima was almost constantly clouded; and no day passed without thunder

and lightning. I measured a base line, in order to ascertain its height and distance, as well as of the other mountains in sight, and watched every opportunity for repeating my observations, in order to obtain a mean result.

Nov. 2nd.—We started in an E. direction for the Roraima range, crossed several intermediate ridges and rivulets which run towards the Yuruani. Vegetation was scanty except upon the stream-banks. At 7 miles we turned N.E. for 7 miles further, as far as the brook Doh. On mount Kaimari I could not but admire the regularity with which a number of boulders of different sizes were placed: if human hands had set them with line and compass they could not have been laid more regularly. Their direction was S. 84° W., over a surface of about a mile. In the afternoon we passed the brook Doh, about 12 yards wide, and shortly after the Cukenam, about the same width, within three miles of its source. From the brook Doh our course became E.N.E. for 4 miles, and at 6 p.m. we were within a mile of the perpendicular walls of Roraima, and encamped for the night in a hollow. We had the greatest difficulty in procuring fire—the constant moisture rendering the brushwood very difficult to burn. At midnight the thermometer stood at 59° Fabr. Before sunrise and for $\frac{1}{2}$ an hour after, Roraima was beautifully clear, and we saw it in all its grandeur from an elevation of 3700 feet above the Arécuna village of Arawayam: its steep sides rise to a height of 1500 feet; their summit therefore is 5200 feet above Arawayam; they are as perpendicular as if erected with the plumb-line; nevertheless in some parts they are overhung with low shrubs, which, seen from a distance, give a dark hue to the reddish rock, and the appearance of being altered by the action of the weather. The geological formation is the same as that we had examined on Mount Kaimari, namely, the older sandstone. One of the most remarkable features of this locality is the precipitation of waters from these enormous heights, which afterwards flow in different directions into three of the mightiest rivers of South America, viz., the Amazons, the Orinoco, and the Essequibo. Several mountains called Roraima, Cukenam, Ayang-Catsibang, and Marima, may be said to form almost a quadrilateral figure, of which Roraima is the highest and the most southeasterly point. This quadrangle occupies from S.E. to N.W. 10 geographical miles; the eastern extremity of Roraima is, according to my observations, in $5^{\circ} 9' 40''$ N. lat., and the north-western point of Ayang-catsibang in $5^{\circ} 18'$ N. lat. Their greatest extent is 25 miles between Roraima and the west end of Irutibuh: at the distance of 2 miles N.W. from Ayang-catsibang rises another rocky wall Irwarkarima, to a height of 3600 feet, remarkable for an urn-shaped rock on its eastern end, which,



The Mountain range of Koraima, in Guyana.

standing as it were on a pedestal of 3135 feet above the Arécuna village, is 466 feet high, and at its widest part 381 feet. Next follows Wayaca-piapa, or the felled tree, which, as the Indians say, the Spirit Macunaima cut down during his journey through these parts. Wayaca is less in height than the rest of the group, and resembles an obelisk with a truncated head. The three mountains, Carauringtebuh, Yuruaruima, and Irutibuh, conclude the group; Carauringtebuh, the highest among them, is 4943 feet above the Arécuna village. Roraima is rarely free from clouds; I only saw it so on two occasions. The circumstance of thick forests extending from its northern extremity to the coast of the Atlantic, while to the S. spread large savannahs, may be one of the causes of the constant humidity as well as of the frequent thunder-storms of these regions. I can ill describe the magnificent appearance of these mountains with their thundering and foaming cataracts precipitating themselves from a height of 1400 or 1500 feet, especially when swollen by the rains after a thunder-storm. On one of these occasions I had the good fortune to be at the Kamaiba, the largest of all these cataracts. Far-famed as is the Staub-bach of the Swiss Alps, it is but a single fall. Roraima boasts of five, besides many smaller ones, after rain. The neighbouring Icukenam sends forth as many, and Marima perhaps still more; the latter fall into the Aruparu river. The mountain of Roraima is $3\frac{1}{2}$ miles long, but of inconsiderable breadth. From its eastern side flows the Cotinga, which mingles its waters with those of the Takutu, Branco, and Negro, and ultimately falls into the Amazons. A little N. of it the Cuya, a tributary to the Cako, which joining the Mazuruni, flows into the Essequibo. From the south-western side of Roraima several streams flow into the Cukenam, which has its source in the neighbouring mountain Icukenam, and forms with the Yuruani the river Caroni, a tributary of the Orinoco. The Yuruani itself, which the Indians consider the head of the Caroni (Caroni-Yamu), flows in numerous streams from the north-eastern side of Icukenam, and is joined by others from its western side and from the mountains of Ayang-catsibang (literally louse-comb), Zarangtibuh, and Irwarkarima. The river Aruparu flows likewise in numerous streams from the rocky wall Marima, joining, at 4 days' journey from its source, the Cako. The river Carauring, a tributary of the Yuruani, flows from Mount Carauringtebuh. The Cako, one of the chief branches of the upper Mazuruni, has its source on the eastern side of Irutibuh, while the Cama, which flows from the western side, joins the Apauwanga, a tributary of the Caroni, N. of the Yuruani.

The marshy savannah at the foot of these mountains abounds in most curious and interesting plants; among them is an *Utricularia*,

the most beautiful of its tribe, and which I have had the honour to dedicate to the most distinguished of American travellers, Baron Humboldt. The root is fibrous, and from it springs one, or sometimes two, fleshy reniform leaves. The stem, of a dark purple colour, rose to a height of 3 or 4 feet, and bore several flowers about $2\frac{1}{2}$ inches in diameter, and of a beautiful purple. The lower lip falls like a collar, and is about 2 inches wide. The upper lip or hood is large, bold at its margin, and larger than the palate which it overshadows. Another plant of great interest, the *Heliamphora nutans*, resembles the pitcher-plant in its leaves, which are similar to those of *Sarracenia variolaris*; but there was a great deviation in the flower; as in the present genus there are several flowers, and the seeds are winged. The flower resembles our snow-drop, consisting however of from four to six sepals.* Of no less interest is a *Cypripedium* growing by the side of the *Utricularia* and pitcher-plant in a marshy soil. I think it is the first South American species. Its hairy and leafy stem, 5 feet high, bore on each peduncle several flowers, which were also hairy. I have no space to mention the numerous other plants of this remarkable region, excepting one, a *Cleistia*, with a deep scarlet flower and stem and purple leaves.†

After visiting this singular group of mountains we returned by Arawayam to Uruparu, where we arrived on the 9th of November, and where fever broke out among my people and detained me: they felt severely the change from the regular temperature of their savannahs, where the thermometer seldom ranges more than 10° or 11° , viz., from 75° or 78° to 85° or 90° in the shade; whereas on the elevated table-land we had recently visited, it stood during the night and in the morning from 60° to 63° , and rose at 2 o'clock in the heat of the sun to which we were naturally exposed while travelling, from 105° to 110° : this, added to the damps and rains to which we had been exposed for four weeks, sufficiently accounted for fever, and I only wondered that I escaped myself. I felt that it was impossible for me to leave these sick men to their fate amongst strangers: they had trusted to me and left their homes, wives, and children, to accompany me, and as I had been hitherto successful in treating their maladies, I determined to remain with them, and do my best for them: in the interval I endeavoured to collect the best information as to our further course, and came to

* For a description and drawing of this curious plant see Mr. Benthams paper "On the *Heliamphora nutans*," Trans. of the Linnæan Society, vol. xviii. p. 429.

† The Flora of Roraima is further distinguished by *Fernonia dichocarpa*; *chretifolia* (N. Sp. Benth.) *Lipochaeta scaberrima* (N. Sp. Benth.) *Calea divaricata* (N. Sp. Benth.) *Achyrocline flaccida*, *Hyptis membranacea*, *Rapatea*, *Kielmeyera*, *Sobralia*, *Odontoglossum*, and several other undetermined species of *Orchideæ*.

the resolution of starting hence in a S.W. direction, by which, according to the Indians, we should reach the Parima on the ninth day.

After a stay of twenty-five days in the neighbourhood of Roraima, we set out on our journey towards Esmeralda on the Orinoco. Retracing our steps in a southerly direction for 30 miles, we reached the sandstone range of Humirida.

21st Nov.—This morning was one of the coldest we had experienced in Guayana, the thermometer at 6 A.M. standing at 59° . We started at 7h. 20m., and by 10 o'clock were descending Mount Tariparú, one of the most southern points of the great sandstone ridge we had lately traversed. Tariparu is in the vicinity of Mount Kinotaima, which we had crossed a month ago. The road over it is not only fatiguing but often dangerous, from the numerous boulders of quartz and the steep precipices on either side of the traveller. Nevertheless we reached without accident the Maese, a streamlet at the foot of Tariparu, where we halted to breakfast: hence the peaked mountain of Arawayang bore S. 61° E.

22nd.—This day commenced with the ascent of the Arawayang, which we crossed at a saddle that connects it with the neighbouring ridges below the summit, which we were glad to escape the difficulty of mounting, for the road was fatiguing enough as it was. From this saddle we had an extensive prospect: we saw Mairari, which we had passed a month ago; Zurumaika, to the S.W., and Mampang, and Tarenni, which we were to pass in a few days. We crossed several brooks which empty themselves into the Inkarama, an affluent of the Muyang, and descended to the S.W. about 2000 feet into a mountain glen, where a cataract is formed by the Warampa, another affluent of the Inkarama: near the confluence of these streams we found an Indian settlement deserted; some of the cotton-trees were loaded with cotton, which our Indians eagerly collected. We waded through the Inkarama, where it was about 20 yards wide, and had some difficulty in discovering the path on the opposite side, from its being overgrown with low bushes; we then commenced to ascend Mount Saraurayeng. From its summit we saw again these detached groups of mountains which bound the savannahs, and among which we could easily distinguish Muritibuh by its tower-shaped top. I saw here white quartz regularly stratified, its direction being N. 8° W. We found some Macusi huts at Canaupang where we halted for breakfast, and procured an additional quantity of yams, a welcome increase to our stock of provisions. Mairari bore S. 59° E. In the afternoon we passed the Zama, a tributary of the Muyang, and travelled in a S. direction over a

table-land, slightly elevated above the valley of the Zuruma: here we were shocked by the sight of the skeleton of a human being near the site of a cabin which appeared to have been burnt down; to all appearances it had been lying there for months. The bones were already bleached, and those harpies, the carrion-crows, had done their work upon the flesh: we naturally concluded that the unfortunate man had come to his death by the fire which had consumed the hut: but we heard another account of it in the evening, which horrified us, from a party of Macusis, whom we fell in with journeying to the savannahs to collect salt: they told us the skeleton was that of one of their own people who was blind, and whose children, grown up, a boy and a girl, they pointed out to us among their number.

The poor man, it appeared, had been in the habit of going about with them; and though he could find his own way to the provision-grounds, in one of their excursions he lagged behind and lost his way. With their usual thoughtlessness, no one went in search of him till two days had elapsed, when no trace could be found of him; and no doubt he was no further thought of until his remains were discovered some time after. Can such be the state of parental affection among the Indians? Our lat. this evening by Achnar was $4^{\circ} 18' N.$

23rd.—We were now in the basin of the Zuruma or Zurung, and travelling S.E. we twice crossed the Yanau, one of its small affluents, which flows in an E. by S. direction towards the low savannahs, which we reached at one o'clock p.m. We found the Zuruma about 50 yards wide, and much broken by rocky dikes, which cross it, forming numerous cataracts. These dikes seem to be links between the mountain-chain we had just left and the isolated groups of Mampang and Muritubuh in the S. We followed the Zuruma some distance in a S.S.E. direction, before we could find a place to ford it safely. We then turned S.W., and about 2 miles from the foot of Mount Mampang reached a magnificent cascade formed by the brook Marai Kawana, as it falls over a perpendicular height of 300 or 400 feet. The valley of the Zuruma extends in a S.S.E. direction, and is about five miles wide. We were now in the country of the Wapisianas, and halted for the night at one of their settlements.

24th.—Our path was strewn with numerous blocks of granite, which made our march fatiguing. At 8 h. we crossed the Warauwayang, a tributary of the Marua, the river Parima of the maps. It was here about 30 yards wide, and, the Indians say, has its sources in the N.N.W., near Mount Ucaraima. The Indians call this river the Marua, and not Parima, by which name, or rather Paruima, they designate the Rio Branco of the maps from its sources (Urariquirá) to its confluence with the Rio Negro. It is

full of broken ledges of rock, which enabled us to pass it easily, without the necessity of going up to our middle in water. The grass on the opposite side was very high; and my coxswain was nearly bitten by a rattle-snake in it, upon which he came un-awares. The Indians set fire to the grass to prevent its escape. We encamped at the foot of Mount Marua, where we found two huts, inhabited by Wapisianas; the greater part of the inhabitants were gone to the savannah to collect salt.

25th.—This being Sunday, we halted all day. About 12 miles distant from Marua, S.E. by E. $\frac{1}{2}$ E., the Indians told us of some very remarkable boulders of granite, which they call Tamurumu.* The highest, which they call the "abode of the spirit Macunaima," they described as 300 or 400 feet high, and covered with hieroglyphic figures, like the rocks at the cataracts at Waraputa, and at Temehri, and elsewhere on the river Corentyn. We were prevented from visiting them by an unfortunate accident to one of our party, who was bitten by a rattle-snake. He was brought in senseless. I ordered the wound, which was over the artery of the leg, to be sucked alternately by two powerful men, and well rubbed with salt and sweet oil, which were also given internally, and a ligature to be fixed tightly above the wound. When he recovered his speech, he complained of acute pain, not only in the wounded part, but likewise in his side, under the arms, faintness of sight, and giddiness. His pulse was small and irregular; and I feared much for his life, when he fell into a new stupor, and threw up blood from his stomach. I then gave him a dose of castor-oil, and covered him with blankets, to produce perspiration, which, after an hour, was copiously effected, and his pains became less acute. He told us whilst fishing at the brook the snake had jumped at him, and bit him in two places. He had once before met with a like misfortune, and said he had been saved by drinking a small cup of milk drawn from a woman's breast. This was accordingly procured for him. We did our best to promote perspiration, and continued to rub the wounded part with sweet oil. The leg was not much swollen; but his eyes were bloodshot, and it was evident that his sight was affected. His limbs remained rigid, and he complained much of giddiness till night.

On the third morning he was so much better that I determined to leave him to the care of his relatives, and to proceed next day on our journey. Lat. by mer. alt. of Fomalhaut $3^{\circ} 57' 40''$. We had consequently crossed the river Marua in about 4° N. lat., about 20 miles from its sources further N. in the Ucaraima

* This is, no doubt, a corruption of *Tepu Mereme*, "painted rock," in the Maypure language. M. de Humboldt discovered a similar rock on a savannah a few leagues from Encaramada.

mountains, which is very different from its position in the existing maps.

27th—30th.—Leaving our invalid a supply of rice, to which I ordered him to be restricted for the three next days, we continued our march to the S.S.W. and S. for 40 miles over the savannah, keeping the mountain-chain on our right at a distance of from 15 to 20 miles. Its general direction was E. and W. To the S. we observed several isolated groups; among them Cawaibassi appeared the highest. Mount Wawatibuh bore in the morning S.S.W.: along its southern foot flows the river Maiyari. In the afternoon the group Tupae-engtibuh and Waikamantibuh bore W. The river Maiyari is turned somewhat more eastward by this group, as it passes the latter mountain. We crossed the river Maiyari in $3^{\circ} 33' N.$, where it was about 130 yards wide, and, travelling W.S.W., reached the next day a Macusi settlement called Curutza, consisting of 3 round cabins, with about 50 inmates. This place was 3 miles from the river Parima or Rio Branco, and about 12 miles from where it is joined by the Maracca to the S.S.E. This latter stream, the Indians say, is not a distinct river, but a branch from the Parima, which, separating from it some way higher up, here falls into it again, after forming a large island of the intervening country. Of the settlements of Conceição, Cajucaica, and San João Baptista, which are marked in the latest maps in this vicinity, I could discover no trace whatever.

The number of women in Curutza far surpassed that of the men, who, in consequence, indulged in a plurality of wives. One aged man had three, two of them sisters, whom he had lately married, and by both of them had children then in arms. The chief of the tribe had as many wives; one an old woman, who was evidently mistress of the household, notwithstanding the great attraction of her companions, who were young enough to be her daughters.

Dec. 1st—3rd.—Our course was W.N.W.: passing about 8 miles to the southward of Mount Tupae-engtibuh, which I estimated to be 3000 feet above the savannah. It forms a wall-like ridge of rock, thinly overgrown with wood. Waikamantibuh, which is one of the same group, is more peaked and regular in shape. In the afternoon we crossed the brooks Avariapuru and Warapapura, which join the Parima about $\frac{1}{2}$ a mile from each other.

At 4 P.M. we reached a Zapara settlement, called Sawai Kawi, where we found upwards of sixty Indians, a mixed assembly of Purigotos and others collected together from the Uraricapara, Merewari, the Orinoco, and Paraba, a tributary of the Caroni. I soon recognised in the captain, a Purigoto, the same fellow who three years before had told so many lies to Mr.

Brotherson about Lieut. Haining and myself, when detained by sickness at San Joaquim, while we were exploring the upper Rupununi. I suspected that he was after no good, and that he was deceiving the poor savages who were with him, and who, he said, he was going with to Pirara and the Corentyn: amongst them were some Oewakus, who live in a wild state at the sources of the Uraricapara, neither women nor men wearing any covering. Their huts are moved from place to place, and they seem little attached to localities, flying at the appearance of any stranger; those I saw appeared very timid: they were about 4 feet 10 to 5 feet in height, slender, eyes small, face in general long, and their colour lighter than that of the other Indians. Very different beings were the Maiongkongs and Mauitzis, who, I believe, are sister tribes, and inhabit the Merewari and Paraba; they were from 5 feet 8 to 5 feet 10 inches high, and even taller, faces round, eyes set close together and somewhat obliquely, forehead small and retiring, their figures broad and muscular, long eyelashes, but the eyebrows, as well as beard, plucked out. Among the females of the Caribis and other tribes of Guayana, they have a strange fashion of increasing the size of the calf of the leg by tying bandages round the other part when young. These Maiongkongs had not only such bands round the leg, but likewise round the upper part of their arms, on which they wore armlets of their own hair; for necklaces they wore a bunch of the slender stems of a cryptogamous plant, a fern, which they called Zinapipo, and to which they ascribed talismanic property. Their waistcloths were of their own manufacture, hung with fringes and dyed red. The Mauitzis resembled the Maiongkongs in dress and appearance, but the Guinaus who were with them had oval faces, small heads, sharp features, and high cheekbones, with rather a gloomy expression of countenance. We saw but few women with them, and were told they had not yet arrived, though expected from the Parima.

As I understood they intended to finish their journey by land, I applied to the old Purigoto to sell me their canoes; he seemed at first anxious to deter us from proceeding, and to alarm us with fears of the starvation and sickness prevailing higher up the Parima and Uraricapara, that we should find no people, and such tales; but at last he was induced by presents, &c., to comply with my request, and I further engaged two of the Maiongkongs, who, I found, came from the vicinity of the Orinoco, to accompany us, with the old captain's permission.

By mer. alts. of α Cassiopeiæ and α Eridani, our lat. was $3^{\circ} 35' N.$ During our observations the strange Indians evinced much wonder, and were all ear and eye; they believed we were pi-ai-ing or conjuring. The old Purigoto, however, wished to

show his importance, and to prove that he knew something of the matter, and pointed out several stars by name—Achernar he called Irika; the three stars in the belt of Orion, Kaikara; Aldebaran, Wauyari-Yutta; the Pleiades, Yumang; Capella, Yawaiva.

4th.—This morning was disastrous to our future astronomical observations; in winding up my watch the chain broke, and we were thus left without a time-keeper, a misfortune without remedy, for, had I sent back to the colony, two months must have elapsed before a messenger could possibly have returned, and then the season for travelling would have been nearly over. I resolved, therefore, to go on and do as well as I could; but henceforth we had to estimate the time. In Guayana the traveller ought to be provided with instruments in triplicate, and they should be of the best construction. I was unfortunately so peculiarly situated, and was obliged to make so many sacrifices to procure other instruments, that I was not provided even with duplicates, and though I had written from Pirara for a second watch, it never reached me.

5th.—At 9h. 30m. we started in a S.S.W. direction, and in 1 hour reached the confluence of the small river Paparu with the Parima, where we found the four small corials promised us by the Purigoto. We were just preparing to load one of them, when down he came with his people and told us he had changed his mind, and could only let us have one corial, as he meant now to go by water himself to Pirara. As one, however, was useless to us, I was obliged to insist with him on our agreement, and at last to take by force another, but he went off with the two smallest. I was prevented from using my fire-arms only by the fear that false accounts might be circulated amongst the Indians as to our real objects. After this quarrel I set the people to work to cut down some spars wherewith to make paddles, and to raise upon and otherwise fit the corials for our expedition. The whole party were in motion, and our camp looked like a dockyard.

6th.—The corials were ready by noon. From the information I had collected from the Maionkong Indians, one of whom was especially acquainted with the regions of the Orinoco, and told me of the Cassiquiare, the mountain Maravaca, and the river Entuari (Ventuari), I thought it advisable to follow the Parima instead of the course of the Uraricapara, as I had first intended. At half-past one we entered it, where it was about 300 yards wide, and much impeded by rocks, forming a series of rapids. Our course ascending the stream was S. 40° W. We had no sooner entered the rapids than I found the corial was overloaded, and I was obliged to send back two of my party: our frail bark, however, still took in so much water wherever we got into the surge of the rapids, that on reaching the mouth of the river Yurumé we landed, and cut down a Wanussuri-tree (*Cecropia peltata*); out of

which two side-planks were made and shortly added to our washboards, which, though it did not accelerate our way, at any rate rendered our passage more safe, and saved the people from getting wet.

The river Yurumé joins the Parima from the N.W. It is shallow at its mouth, much impeded by sandbanks and rocks, and about 100 yards wide. In the Portuguese survey it is called the Idome. The Indians of the present day call it Yurumé; of the settlement of San João Baptista, which appears in the latest maps, no vestige now exists. I found the latitude of junction to be $3^{\circ} 30' 40''$ N., differing but little from the latest maps founded on the Portuguese surveys.

7th.—A succession of falls made our progress very slow: at those of Marari, Tiatipang, Arukiana, and Matiripang, we were obliged to unload the corials and carry the luggage overland.

Our direct distance made during the last three days was only 14 miles, and as I estimated our height at 110 feet above the Yurumé, this would give 8 feet fall for a mile.

About 9 A.M. we reached the mouth of the Uraricapara, which may be 80 yards wide. Its water is of the same colour; and its current about the same as the Parima, namely, nearly 3 miles an hour.

Towards the end of the last century the Spaniards had on its right bank, some way up it, a small fort called Santa Rosa, which, however, was abandoned, and its site overgrown with bushes when the Portuguese surveyors visited it at the commencement of this century. Its lat. was $3^{\circ} 50'$ N. If I had not met the Maiong-kong-Indians now with me, I should have attempted the ascent of the Uraricapara, as recommended by M. Humboldt, instead of continuing on the Parima, but as they all agreed in their accounts that I should find the upper parts of the river uninhabited, and should thence have a long journey to make westward overland, I determined on keeping by the latter. The last reach of the Uraricapara is S. 46° E., and it appears to come from the N.W.: however, near its mouth some hills turn it to the S.W. The lat. of point of junction deduced from last night's observation is $3^{\circ} 20'$ N.

The river Parima, before it is joined by the Uraricapara, is about 200 yards wide; not far from their junction the same ridge which crosses the Uraricapara traverses it and forms two great cataracts. The Purumamé Imeru is certainly one of the largest falls in Guayana, vieing in size and magnificence with William IV.'s cataract on the Essequibo, and the falls of the Corentyn. This formidable obstacle to the navigation seems to arise from the river having forced its way through the hilly range already alluded to. Narrowing to about 50 yards, it divides into two streams, and precipitates itself from a height of 40 to 45 feet: the whole

width of the river at the fall was not more than 10 yards when we passed it, though I have no doubt during the floods that it must be much greater. A little beyond occurs a second fall of about 25 feet, making altogether a descent or fall in the river of from 70 to 75 feet from these cataracts. We had no alternative but to carry our corials over the range, which was about 350 feet above the river; and though the ascent was for about a third of the way almost at an angle of 60° by a difficult path made by the Indians, we nevertheless completed the portage by 4 P.M., and embarking above the falls once more, proceeded about half a mile farther to a convenient resting-place. Lat. by mer. alt. of two stars $3^{\circ} 18' 20''$ N.

11th.—Passed on the left the mouth of the branch called Maracca, signifying “rattle” in the Macusi language; it is about 100 yards wide, and partly obstructed by an island; as before mentioned, this branch is said to flow E.N.E., and to join the Parima about 36 miles farther to the eastward. After this separation of its waters, the ascent of the main stream, or Parima, is again in a S.S.W. direction; we soon came to another cataract, the Emenari, where we had again to unload and to carry our baggage and our corial for a distance of 600 to 700 yards over land. Half a mile in a southern direction from this fall, the river is rejoined by a branch which separates from it about 20 miles higher up: our Indians told us, if we followed it it would lead us far to the N. and away from a Zapara settlement which we hoped to fall in with in the course of the day.

At one o'clock we arrived there, and found the people located in a very wild spot almost inaccessible from the falls and rapids by which it is encircled. The men of the tribe were so hideously ugly that we called them the Ugly Faces. They seemed to suffer, most of them, from inflammation in the eyes, many of them squinted horribly, and others were evidently dropsical. Their voices were squeaking and very disagreeable: the chief only was a good looking personage. The women were a striking contrast, and really very pretty; one girl I thought the prettiest Indian I had as yet seen. Altogether there might be about forty of them crowded into three huts: these were built round, neatly thatched with palm leaves, not pointed at the top as the Macusi houses, though with an opening for the smoke. The interior was clean, the only thing commendable among them.

The Zaparas, it appears, have arisen from the intermarriage of Macusis and Arécunas. They principally inhabit the mountains Tupae-eng and Waikamang, though there are likewise a few of their settlements along the banks of the Parima, of which this was one. Their whole number probably amounts to not more than 300. They differ little in appearance from the Macusis: if any-

thing, they are more slender, and not so robust in figure. I had no opportunity of collecting any of their words, but their language is merely a variety of that of the parent tribes, the Arécuna and Macusi. As they were short of provisions, and could only spare us a bunch of bananas, we continued our journey next morning.

12-14th were spent in toiling with much labour and fatigue up a succession of falls and rapids: our daily progress barely exceeded 3 or 4 miles in a westerly direction. The river in some places is bounded by steep hills to the water's edge; in others it opened out into a wide expanse of 2 or 3 miles, thickly studded with islands. It is richly stored with fish, Haimara, different species of Silurideæ, chiefly Pimulodus, and various others; the Electric Eel (*Gymnotus electricus*) abounds—several were shot with arrows measuring from 5 to 6 feet. During our progress through the falls, our Indians were frequently stunned by their shocks; they are eatable, but too fat to be good; one which measured 5 feet 9 inches, and was 14 inches in girth, weighed twenty-two pounds. The Macusi call it *yaringra*; the Guinaus, *yari-mina*; the Maiong-kongs, *arina*.

17th.—We passed this morning the mouth of the river Uruwé, which joins the Parima from the N.W. It appears to be of the size of the Yurumé: 5 days' journey from its mouth it is inhabited by Kirishanas. At noon we landed at a settlement of Waiyamara Indians, which our guides informed us would be the last we should fall in with for eighteen days; it became therefore necessary to provide ourselves with a fresh stock of provisions, for ours were at the lowest ebb.

The settlement was some distance from the river. It consisted of two huts, and the ruins of a third, which had been lately burnt down. The captain received us, sitting on a low stool, surrounded by his men, all armed with war-clubs; having heard what our guides had to say about us, he rolled up a few leaves of tobacco in the inner bark of the cakarally tree (*Lecythis ollaria*) in the form of a cigar, lighted it, and after smoking it for a little while, handed it over to me. Though no smoker, for form's sake, I gave a few puffs, and handed it on to our guide. This custom, though very common among the North American Indians, I have never seen before among the Indians of Guayana. This party consisted of forty-five individuals, besides those who were absent clearing a new space for provision grounds: they looked sickly and haggard, and were a striking contrast to the more robust and healthy Arécunas we had previously seen. I observed two blind persons, and others suffering from sore eyes, and one who was deformed. It would appear, from this instance, that the shocking practice of destroying deformed children is not so general among the savages of Guayana as has been supposed;

neither could I learn anything of the practice of destroying one out of every birth of twins, as has been mentioned by Humboldt.

The principal settlements of the Wayamaras are along the river Mocajahi, the Kaiyawana of the Indians, and about 3 days' journey, or 50 miles off to the southward: the tribe is not numerous; they only spoke of three other settlements besides their own. In appearance they resembled the Zaparas, and their height was scarcely above 5 feet 6 inches. Their language in many respects was different from the Macusi, and appears to abound in the ph, as *iphaeri*, *kaephanari* ears. They could not count beyond five; for ten they say *tuphara*: their intermediate numbers, six to nine, I could not learn. Their captain, or Kaibisaka, is known by the name of Marawai, and had an intelligent face. In the first instance he refused our application for provisions; but the sight of some knives, beads, and hooks, induced him to change his mind; and we agreed with him for twelve baskets of cassava roots, and several bunches of half-ripe plaintains. It took, however, almost a day and a half before that quantity could be delivered; and, after all, it was only enough for a full allowance for our men for five or six days; whereas we had a journey of eighteen before us before we were likely to get any further supply, if we were to believe our guides. By mer. alt. of four stars I found the lat. to be $3^{\circ} 14' 48''$ N.

20th.—We proceeded onward once more to the W.N.W. The course of the river was still broken by rapids and islands. At noon we passed by a stream called the Paruaina, running into the Parima from the S. by two mouths. Towards evening we halted near a temporary hut of the Wáiyamaras, containing twenty-five individuals, children included.

21st-22nd.—At 8 A.M. we had a distant view to the N.N.W. of the blue outline of the Maritaní mountains, whence flow the Uraricapara and the Paraba rivers. We afterwards passed the small river Akamea, which joins from the S.

On the following morning the Maritaní range was more distinctly visible, extending from E.S.E. to W.N.W. at a distance of 15 miles. I have already stated that it divides the waters of the Caroni from the Uraricapara and Parima, and is no doubt a continuation of the Pacaraima range. It is inhabited by a few Waiyamara and the wandering tribes of Oewaku. I inquired in vain for the portage of Anocaparu; my Indians were not acquainted with it by that name. Paru signifies, in the language of the Guinau, a brook, and is not applicable to a mountain portage.

23rd-25th.—Continuing in a northerly direction we neared a range, being a continuation of the Maritaní mountains, and of the same sandstone formation: they rise from 2000 to 3000 feet above

the river, in many places perpendicularly. The river Parima flows along their south-eastern base: the summit of one of them is a cone, like the Wayacca, of the Roraima range. It is covered with underwood, and its dark colour, added to its singular form, have obtained for it the Indian appellation of Quatta, after the monkey (*Atelis paniscus*). The vegetation of the river's banks is here more luxuriant than below the large cataract: we observed among others a tree which distinguished itself by the elegance of its clusters of white flowers tinged with rose, and its large stamens of a rich pink colour. These clusters were borne in profusion, and their dazzling colour was well contrasted with their airy foliage, of dark green pinnated leaves. The young leaves, of light green, hang down as if in fringes, and add to the variety of its rich appearance. It proved a genus as yet unknown to botanists, and the name of ELIZABETHA REGIA will henceforth distinguish a tree which in beauty vies with one of the most splendid productions of the eastern hemisphere, the noble *Amherstia*, and the no less distinguished *Brownea* of the western tropical regions. A second species of this new genus, the *Elizabetha coccinea*, which fringes the banks of the inland rivers, has clusters of scarlet flowers.

At noon Mount Pakaraima bore N. 4° W., distant about 4 miles. It is a singular insulated mountain, and from its figure has been called the Pakara or Pakal, meaning a basket.* I estimated its height to be about 2000 feet. It consists of sandstone. A range called the Ariwana mountains, running more northward, follows the Pakaraima, and are higher and steeper. From the Ariwana descend the small rivers Kawanna and Inikiari, which join the Parima from the northward. The waters of the Inikiari were of a light yellow colour, and temp. 3° lower than the air. At noon one of our guides, a Guinau, pointed out a hill distant about 15 miles to the north, where, he said, the Paraba or Paragua had its source.

We halted at a provision plantation of the Kirishana, a wandering tribe like the Oewaku, though much more warlike and courageous; and as wild as nature made them. They go without any clothing; and live either on game in the mountains, or, when that is scarce, upon the fish, turtles, and alligators of the rivers. Occasionally they exert themselves to clear a small spot of wood, and plant it with capsicum and cassada roots, as it appeared they had done in this case; returning for the gathering as suits their other avocations. For their expeditions by water they construct light canoes of the bark of trees, which are soon made: fire does the work of the axe. As the Oewakus are despised by the other Indians, so the Kirishanas are dreaded; they know it,

* A chain of Pakaraima mountains also occurs on the Upper Mazaruni, very probably so named from a fancied resemblance in their form to the Pakaras of the Indians.

and make no scruple of plundering the more defenceless tribes whenever they have an opportunity; their poisoned arrows are always ready. Three of the Maiongkongs who were lately sent down the Parima to hunt fell in with some of them, who killed two out of the three—the third escaped, and brought the news to their party, who in their alarm all took at once to flight. We found no traces of their having been recently in the neighbourhood, but our Indians were not the less on the alert all night. According to the maps, we were now at the source of the Parima; but, in fact, this river was here still 300 yards in width.

26th—28th.—At our halt this evening the lat., by two observations, was $3^{\circ} 40' N.$ The mountains of Quatibuh and Quebetibuh bore N.W. and N. $50^{\circ} W.$, and the river flows between them. They are from 1000 to 1500 feet high, rugged, and of the same formations as the rest, sandstone, which shows itself in horizontal strata along the river, and forms dykes and rapids where it crosses it.

The wooded mountains of Masuaka, towards which we were now to bend our course, bore W. by N. at noon, on the following day looking like a wall, extending N.E. and S.W. At 2 P.M. we halted at the junction of Arekatsa, the course of which we were henceforth to follow, in a N.W. direction, instead of the Parima, which here forms an abrupt angle, coming from the S.W. This river is of less size than the Uraricapara, and perhaps not more than 33 yards wide. It falls into the Parima from the N.W., in lat. $3^{\circ} 44' N.$

The breadth of the Parima here was about 250 yards: its course from W.S.W., through a long chain of mountains, the blue outlines of which we could trace to a great distance. The course of the Arekatsa, as we ascended, was very tortuous at first. Its banks were low and sandy, and covered with numerous palm-trees, interspersed with which I remarked also a species of mountain-cabbage, the cucurite, a few manicolas, and another plant resembling it, called ariha; two species of turo, and the popo, which, though a very scarce plant, within 100 miles of the coast, was here in great abundance.

A species of *Triplaris*, different from that of the coast and the lower rivers, was also very common. We halted at a fall of the river called Warimieme, which, although apparently small, forced us nevertheless to unload, and to carry the luggage over-land. Our lat., by means of four observations, two N. and two S., of the zenith, was $3^{\circ} 45' 40'' N.$ At another fall, called Merisol, on the following day, we had again to unload our corials, and to carry the luggage for nearly $\frac{1}{2}$ a mile over land.

29th.—We found it impossible to proceed further by water; so, on reaching the Kaimukuni, I determined to abandon the corials. From hence I sent some messengers forward to the first Guinau settlement, with directions to meet us, with some small corials and

provisions, of which we were already in want, at the Aiakuni, a tributary of the Merewari, whence I hoped to be able again to continue our journey by water-carriage. We followed them next day.

Jan. 1st, 1839.—Our path led for the first 5 or 6 miles in a W.N.W. direction, over mountains 500 or 600 feet high, through which runs the Kaimukuni, the bed of which we followed upwards, wading through the water, sometimes to the loins, at others to the shoulders; glad enough we were, therefore, to reach a hut where our baggage had been already deposited.

This day, the first of the year, could not pass without many recollections of the manner in which we had passed the same anniversary since I commenced my travels in these regions, and with the particulars of which the reader has been already sufficiently acquainted by my previous journals. It did not pass away without my having but too good cause to remember it: hardly had I reached our night's lodging when I found myself seized with a severe attack of bilious fever. Three of the Indians were also taken ill; and, to make matters worse, we were very short of provisions. Our last cassada bread was gone, and we had to subsist as we could on mountain-cabbage and wild-fruits: game was hardly to be found, and even fish was scarce.

It was not till the 5th January that we could attempt to resume our journey from the Kaimakuni, which had dwindled to a mere rill. We ascended a high hill, and followed a path to the N.N.E., leading from the Kaimakuni to the Aiakuni, a tributary of the Merewari. The mountains we were now crossing, and which I estimated to be about 3000 feet above the sea, divide the Merewari and its tributaries from the Arekatsa and Parima. They are thickly wooded, and range E. and W.: we crossed them in a direction of N. by E. Their height does not prevent the Indians of the Merewari from carrying their corials and canoes across them; the portage is about 3 miles.

6th.—We arrived at the Aiakuni, and found there the messengers we had sent forward with three small corials, but no provisions, though we were told the Guinaus would meet us with some bread half way to their settlement. Mountain-cabbage was in the mean time our principal food.

7th.—This afternoon we entered the river Merewari, the width of which varied from 150 to 200 yards, as more or less swollen by the rapids. I was surprised to find so large a stream, as, according to the maps, its sources are placed 80 miles farther N., and 60 miles farther W. than where we met with the river; and to judge from its extent, I should say we were at least 40 miles from its source to the S.W.

This river, the Mareguare of the Spanish maps, is a tributary to the Erivato; or rather at the junction of the two they form the

river Caurá. About 2 P.M. one of the corials, in passing a rapid, upset; fortunately we lost nothing, as the water was shallow. Towards evening I succeeded in obtaining an observation of α , Eridani, which gave our lat. $4^{\circ} 5' N$. This was at a fall, near which we encamped, called Canicoan.

8th.—The river being swollen, we had much difficulty in passing the falls and rapids, and had several times to unload. The falls of Apai-shibi and Kributu were at least 20 feet perpendicular. Several streams joined the river from the mountains, right and left. One of them, the Wai-ina, from the E.S.E., I estimated to be about 80 yards wide at its mouth. Our guide told us it was the resort of savage Indians, who did not permit any stranger to pass their camp. The vegetation along the Merewari was luxuriant: numerous palm-trees, and the *Heliconia gigantea*, diversified the scenery.

In the afternoon we were gladdened by the sight of the corial we were so anxiously expecting with provisions, and which brought us, as promised, a supply of fresh cassada, and the favourite drink of the Indians, paiwari; no small treat to our hungry stomachs. Entering the Avenima soon afterwards, a few miles to the S.W., up this stream, we reached the site of the Guinau settlement on a small but steep hill, a short distance from the river. Here we found two huts, with fifty inhabitants, chiefly young females. They consisted of Guinaus, and a few Maiongkongs. Young and old came forward waving their hands, and apparently rejoicing to see us amongst them. The place and its surrounding scenery reminded me much of the first Woyawai settlement we had visited, and the huts were quite as filthy, in spite of their efforts to make a better appearance.

In lat. $4^{\circ} 16' N$., about 30 miles N.W., is the mountain Araba, by the eastern foot of which flows the Méréwari; it looks at a distance like a rugged and perpendicular ridge of sandstone. Beyond, in the W., is the mountain Paramu, and about 25 miles from that mount Pababa, where we were told were the sources of the rivers Cacara and Méréwari. The Erevato, the Indians said, rose in Mount Maria-etshiba, near the source of the Entuari (Ventuari), which river the Maiongkongs call Paraba. The fact that the Méréwari is to be found 90 miles further S. than laid down on the latest maps is of importance to geography, and narrows the limits within which we may expect to find the sources of the Orinoco to comparatively a small range, 30 or 40 square miles W. of the Guinau settlement.

The course of the Méréwari winds much, from the succession of hilly ranges through which it has to force its way; and is so much broken by rapids as to be impassable above the Aiakuni, even by the small canoes of the Indians.

The sandstone range called Maratti Kuntsaban runs from W.N.W. to E.S.E., and separates the waters of the Paraba (Paragua, Paraua,) from those of the Méréwari. The natives going hence to the Paraba carry their corials to the N.N.E. over the mountains Pamuyamu, till they reach the Catsikari, a tributary of the Curutu, which flows into the Paraba. The portage of the Paraba Musi, of which Baron Humboldt speaks, is well known to the Guinau and Maionkong Indians.

I found the language of the Guinau very different from that of the other tribes which I had met with in Guayana. This was strikingly exhibited in speaking of the heavenly bodies: the Macusis, Caribis, and Arawaaks, &c., call a star seriko, serika, serigu; the Guinaus call it Yuwinti: the moon, which is called Nuna by the Caribis, and Capoi by the Macusis, is called Kewari by the Guinaus.

In answer to my inquiries as to the history and origin of their tribe, they could give me no information whatever. No Europeans, they said, had ever before visited them, prevented as they supposed by the numerous cataracts of the Méréwari river. They do not differ in manners from the generality of the natives, and are equally indolent. Their chief meal is in the morning and evening, consisting of a pot of fish or meat; or, for want of them, of a sauce made of the leaves and fruits of the capsicum. This is first set before the head of the family, who shares it with the men and guests; the women afterwards take what is left. The women paint their bodies with a black dye (perhaps from the Lana or *Genipa Americana*), and wear round their ankles, knees, wrists, arms and necks strings of light blue beads. They cut their hair short; and some wear trinkets of tin in their ears. The faces of the men were painted with the preparation of the chica: they wore round their ankles, knee-joints, and arms, braids of their own hair; some wore beads like the women. Through the cartilage of the ear was thrust a piece of bamboo, one end of which was ornamented with the feathers of parrots, macaws, the black powis, or, in lieu of the bamboo, they wore the tusks of the wild-hog; necklaces of monkeys' or peccarys' teeth were likewise common. Their speech is boisterous, and their laugh is still more so, ending in loud screams.

As unfortunately the Maionkong, of the Upper Orinoco, were at war with the Guinaus and Maionkong of this region and the lower Orinoco, I could not persuade the guides who had accompanied me so far to continue with me, though I offered them higher pay; they were afraid of their lives, and said they should surely be poisoned if they went on.

They had no knowledge of Esmeralda, or Mount Duida, by those names, though on further explanation they made me under-

stand that Esmeralda must be their Mirara, and the Duida Yéonnamari. They were well acquainted with the Maravaca, which they described as a mountain like Roraima; they also knew the Frenchman M. Arnott, who, I was told by Senhor Ayres, trades between Bararoa and Esmeralda.

Under these circumstances I determined, as soon as my invalids were convalescent, to cross the peninsula formed by the Méréwari, and to proceed westward in search of the sources of the Orinoco.

The state of the weather had been changeable, the thermometer varying from 64° to 88° in the course of the day. The lat. by mer. alt. of four stars was $4^{\circ} 16' N$.

Jan. 14th.—We started from the Guinau settlement. On going to the huts to take leave, I witnessed the melancholy scene of a young woman dying of consumption: near her hammock sat her husband, calling her repeatedly; but she heard him not:—whilst their child, a little boy, was assiduously employed in putting heated stones into a vessel filled with water, which stood under her hammock, and served as a kind of vapour-bath. We afterwards heard that she did not survive the day.

We followed the course of the Méréwari downwards in a northerly direction, passing several falls: small hills on both sides hemmed it in at times, so that its breadth was little more than 30 yards. Towards evening we reached the mouth of the Cannaracuna, which joins the Méréwari from the W.N.W. Its waters were quite black, and strongly contrasted with those of the Méréwari, which are of a reddish hue. We encamped at its mouth in lat. $4^{\circ} 30' N$. and quitted the Méréwari, which flows away to the north.

15th.—The ascent of a small river is, under all circumstances, most wearisome, especially if it be shallow or impeded by rapids, as was the case with the Cannaracuna. The monotony of the scene was only broken by occasional glimpses of the rugged and broken ridges of sandstone mountains at a distance, which, to our imagination, assumed a thousand fanciful forms. In the afternoon all further progress with our corials became impossible. The river for miles was broken by falls, and thickly studded with boulders, between which no corial could pass. We had no alternative but to leave our corials, and continue our journey by land. As the people I had with me were not sufficient to carry our baggage we had to leave a part behind, intending to send for it the following day. After a march of 7 miles over steep mountains we reached two huts, inhabited by Maiongkongs and Guinaus, in all thirty-two persons; some of these men and women were very singularly painted with lana in various patterns, one not unlike the Greek border. We were now at the change

of the moon, and in the evening were visited by a severe thunder-storm, with such cloudy weather that my hopes of an extensive view from this elevated site were entirely frustrated; it was equally impossible to procure astronomical observations.

The following day we sent for the remainder of our baggage. I was seriously indisposed from the effects of dyspepsia, brought on by long fastings, and insufficient or bad and indigestible food, particularly mountain cabbage—a delicate dish where the means are at hand to prepare it properly, but highly indigestible as we were forced to eat it.

17th.—This settlement was on a small stream called the Yapekuna, about $\frac{1}{2}$ a mile from its junction with the Cannaracuna, on which we once more launched our corials to proceed onwards by water.

As we approached the high ridge of sandstone mountains, I estimated some heights, called Sarisharinima, at about 4000 feet. They were covered with wood, and more rugged than the range of Roraima; and, to judge from the boulders strewed at their feet, the sandstone was more crystalline.

Leaving the corials whilst they were forced over some rapids, I walked about half a mile across a savannah, a rare sight in the midst of the dense forests which extend hundreds of miles in all directions: it was a sort of oasis in the desert, for the origin of which it is not easy to account. I found the soil mixed with sand, and void of vegetable earth, being a kind of red ochreous clay. The Indians pointed out a few wild calabash trees (*Crescentia cujetá*). A short distance from this savannah we came upon an Indian hut, constructed in the most fragile manner, and open at the sides. The inhabitants, nineteen in number, were engaged in making a new provision field; among them we observed, for the first time, some men and women entirely naked, though painted. The river meandered along the foot of the sandstone mountains, with almost continuous falls.

18th—20th.—The people of one of the smaller corials which had started before us came to a halt to dig up the larva of some insect, which I found them eating with their cassada bread. It appeared to belong to the order *Hymenoptera*, and was enveloped in a lump of clay, hardened like a shell. I did not taste it, though I dare say it was as good as the larva of the *Calandra palmarum*, or Grugru-worm, which the French colonists consider a great delicacy.

We were again obliged to abandon the corials and to continue our journey by land. It varied little from that of the preceding day; and to me, an invalid, it was extremely fatiguing. In the whole day, we made only about 5 miles. At the junction of the Kuihakuni we left the Cannaracuna, and proceeded to a Maiong-

kong settlement, where in the evening we were joined by a party of Arécunas from the Caroni.

Finding that the eldest of the Arécuna party understood the Macusi language, and as the want of an interpreter had already twice given rise to mistakes and loss of time, I was very anxious to engage him to go with us, which he agreed to do, on our allowing him to stay with his friends till next day, as he had been so long absent from his home.

Though their language is different, we have hitherto found, in all their settlements, Maiongkongs mixed with Guinaus. The men are distinguished by their love of finery. While the Macusi, Caribi, and Arawaak Indian is satisfied with a string of coral or red beads round the neck, and perhaps some white ones round the leg or ankles, the Guinaus and Maiongkongs wear a profusion of them, and particularly when they can get them of a light blue colour. When travelling, or when unable to afford such a display, they tie bands of their own hair round the ankles, knees, arms, and neck. Sometimes they wear the root of a fern. I saw, in several instances, pieces of Wedgewood ware, rounded, and fastened to the upper parts of the arm. But the greatest object of admiration amongst this party was an old English uniform of the 86th regiment, formerly stationed in Demerara. How it had reached to the confines of Colombia no one could tell us. One Indian was adorned with the crest feathers of the rock manakin—a dress which would have been rather costly in England, where each skin of that magnificent bird costs from 2*l.* to 3*l.* He told us that the manakin is commonly met with in the Sarisharinima mountains.

I obtained several observations, and fixed our lat. in 4° 27' N. The weather, though fair for some days past, was exceedingly cold—the thermometer standing, at six A.M., from 59°·5 to 62°.

21st—22nd.—Our march was still to the south over mountains, the average height of which I estimated to be from 3000 to 4000 feet.

About noon, we again reached the Méréwari, studded with rocks, and broken by numerous falls: its breadth about 50 yards; course nearly S.S.E. We followed its left bank for several miles, to the place where we were told we should find corials. On reaching it, however, there was but one, old and half rotten, which we were obliged to send on to the next settlement—a day's journey down the river—in quest of more. Thus we were again delayed in consequence of false information.

In a direct line to this place from the Guinau settlement—or rather from the junction of the Avenima with the Méréwari—the distance does not exceed 53 miles in an E. by S. direction; whereas, if we had ascended the river by its winding course

through the mountains, we should have been obliged to make a great circuit against the stream.

A long chain of heights which stretch in the 4th parallel of latitude from N.W. to S.E., turn this river to the eastward, and separate it from the system of the Upper Orinoco, to which it would appear at first to belong. These mountains are, no doubt, part of the Sierra Mai, laid down in the old maps; their average height is from 2000 to 3000 feet, and they are thickly wooded; in contradistinction to the sandstone mountains, which form the connecting link between the Sierras Parima, and Pacaraima, and whose direction is E. and W.

The old man whom we had hired as our interpreter, ran away with another Indian during the night. We descended the *Méréwari* for about 3 miles, and entered its tributary, the *Emekuni*, which joins it from the S.W.; at about 16 miles up we arrived at a *Maionkong* settlement, whence we were once more to resume our journey by land.

From this place we had a prospect of a large chain of mountains at the distance of about 20 miles, extending from the N.N.E. to S.S.W. A high mountain called *Mashiatti* was pointed out to me, which bore N.W., where we were told the blowpipe-reed grew in abundance. Our guide told us also that the river *Ventuari*, which the *Maionkongs* call the *Paraba*, flowed in its vicinity. This would place the sources of that great tributary of the Orinoco further S. than laid down in our present maps, if the information of the *Maionkong* Indians is to be relied on. We saw in their cabins several reeds of the blowpipe plant, upwards of 16 feet long, perfectly straight and free from knots. The arrows which the *Maionkongs* use, are more than twice the length of those of the *Macusis*, which are only 12 inches long: they are made of the middle fibre of the palm leaf, and dipped in poison for 3 inches from the point. The poison looks like the *urari*, but the Indians call it *cumarawa*, and the *Guinaus*, *markuri*. My observations gave me for the latitude of the place, $4^{\circ} 11' N.$

As I found that we could not procure an increase of provisions, we left next morning, having with some difficulty hired two Indians to assist us in carrying the baggage in place of those who had deserted us.

26th.—The difficulties of the mountain road were very great, no sooner was one hill passed but another rose before us; so that our progress was slow, and my first attempt to urge the carriers to hasten on was met by a threat to strike work altogether, and leave me in the midst of the wood. I found that instead of my well organised *Macusis*, I had to do with savages, well aware of their numerical superiority. The range of these mountains, which during the first day of our march had a south-western di-

rection, changed more to W.N.W., and we had therefore to cross their axis. Many of the heights were conical, and the average of those which we crossed was from 1000 to 1500 feet: we saw others which could not be less than 2000 to 3000 feet, both on our right and left.

To my great surprise we once more found ourselves in the fluvial system of the Parima (Urariquera of maps), and set up our huts on the banks of the Birima, a small tributary of the Awarihuta, which flows into the first-named river.

I had hitherto doubted the accounts of the Indians, that the Parima could have its sources in the vicinity of those of the Orinoco, so far N. and W. of its position in all existing maps.

As soon as our huts were erected, I was amused to see the Indians set to work assiduously to dig up the earth at the water's edge with long sticks, flattened at the end. On approaching them, I found they were searching for large worms which lie concealed in the mud: they seemed to me like our *Lumbricus*, or rather *Gordius*, only much thicker. After washing off the mud the Indians ate them raw, and apparently with much delight.

In the afternoon we entered a cabin inhabited by ten Maiongkongs, and as our provisions were low, I halted for a day to obtain a fresh supply; the rather as I was told that we should not find any other habitation for four days.

From this place, which according to my observations was in $4^{\circ} 5\frac{1}{2}'$ N. lat., and by reckoning in long. $64^{\circ} 51'$ W., Mount Paba, where the Meréwari has its source, bore N. 19° E., its estimated distance being 55 miles; I have therefore thought myself warranted in placing those sources in $4^{\circ} 58'$ N. lat. and $64^{\circ} 37'$ W. long.; about 30 miles S. of their situation in the old maps: its farthest southern point is also 85 miles farther S. than laid down hitherto.

To the S.E. was the Parima, which for 40 miles runs E. by N. along a ridge of mountains, the highest peak of which, the Kaiwinima, rose about 3500 feet, and bore S. 40° E., from our position. This group extends about 4 miles from S.W. by S. to N.E. by N., and belongs, as far as I could judge from a distance, to the sandstone formation. Mount Paba, 5000 feet high, decidedly belongs to that series, and the ridge from which it rises runs nearly E. and W. At 5 miles off, to the eastward, is a remarkable peaked mountain, which the Maiongkongs call Ara-watta, the Guinaus, Biribu.

All accounts agreed in placing the sources of the Orinoco so near to those of the Parima, and so much to the S. of their position in the maps, that I hoped to reach them in another seven days.

29th.—Starting again on our journey in a S.W. direction, at $1\frac{1}{2}$ miles we crossed the Awarihuta, one of the most considerable

tributaries which the Parima receives from the far N.W. It was about 30 yards wide; its waters light coloured, and the current strong, running over a gravelly and sandy bottom: further eastward it is inhabited by the Macu Indians. Its course, as far as we could trace it from the mountain, was S.E. by E., and the natives pointed in the same direction when we asked them where it joined the Parima.

The mountain ranges which we had now to ascend ran E. by N. and W. by S.; our road over them by a nearly due S. course, became very fatiguing from their great elevation.

Several rivulets poured themselves turbulently down towards the Awarihuta, forming in many places large cascades, over a coarse-grained granite in which large flakes of hornblende were predominant. Every species of palm had vanished, nor was a heliconia to be seen; they were replaced by arborescent ferns: amongst the forest-trees I noticed the sirabali, haya-haya, akayari, tataba, ducali, cumara, walaba, and different species of cakerali, besides others, surpassing them in loftiness and size, which were new to me. A high mountain, which the Indians called Putuibiri, and which I estimated to be 5000 feet high, towered to the westward of our path.

31st.—We now entered the system of the Orinoco, and found all the streams which we crossed, flowing south-westward into the Ocamo, a tributary of that river. A chain of mountains to the southward, the blue outlines of which stretched N.E. and S.W., was pointed out to us at our journey's end; there, our guides said, were the sources of the Orinoco, surrounded by lofty and umbrageous trees. I was prevented from taking an observation, though I hoped to do so next morning at an Indian settlement which we expected to reach. The weather was fair, but the mornings and evenings cold; the thermometer at 6 A.M. seldom reached above 62° Fahr.

Feb. 1st.—This day put an end to my anxious hopes of reaching the sources of the Orinoco: in the evening we arrived at the huts of the Maionkongs, and found them in the greatest consternation, and about to fly from the place in consequence of the massacre of twenty of their tribe by the Kirishanas, who inhabit the mountains between the Orinoco and Ocamo, and who had treacherously fallen upon them when on their way to visit them for the purposes of traffic. The same savages had immediately afterwards surprised a Maionkong settlement only a day's journey from where we then were, and killed every person.

These outrages had excited a general panic; and my party became infected with the same fears to such an extent, that not only did they peremptorily refuse to go forward, but made hasty preparations for taking to their heels and leaving me and my baggage

to my fate. In vain I offered them every bribe I could afford, even my own rifle, to which the chief had taken a particular liking, and which was the present of a kind friend; nothing could induce them to give up their determination to return; and I was thus obliged most reluctantly to turn back at the very threshold of the sources of the Orinoco.

However, their true position is no longer a geographical problem, a single glance at the map on which my route is delineated, will show that all uncertainty as to their situation is now reduced to within the narrow limits of less than 30 miles; and even that uncertainty is lessened by the concurrent accounts of all the Indians, that they were certainly to be met with in the chain of mountains which, as I have stated, they pointed out to me.

I could only prevail on the Indians to wait till the next morning, which I was anxious to do that I might procure observations, in order still more nearly to determine the sources of the Orinoco, which that distinguished traveller, Baron Humboldt, was himself prevented from fixing by a similar misfortune, frustrated, as he says, by the hostile Indians above Esmeralda, who, it appears, are identical with the savage Kirishanas, who had thus so unexpectedly thwarted my own views.

2nd.—The weather did not permit me to take an observation, although I was up the whole night watching for one. Every precaution had been taken to prevent our being surprised by the Kirishanas, and such was the general alarm, that all were glad when the morning approached, and we commenced to retrace our steps to the northward.

My determination now was to make the best of my way to Esmeralda: it seemed that there were two roads thither, one direct W. was the shortest and easiest; but the fright of the Indians obliged me to abandon this, and to make a long circuit northward, by which they considered themselves safer from their enemies. After 25 miles over our former path we turned N.N.W. for 20 miles farther to Warima: it was at first a most wearisome and monotonous route, through forests so dense and high, that nothing was visible beyond our path, till after having ascended a mountain higher than the rest, we found ourselves unexpectedly on a granite platform of vast extent, overgrown with alpine shrubs, *Bromeliaceæ*, *Orchideæ*, *Commelinaceæ*, and various other vegetable productions of high interest to a botanist. They were remarkable for their gigantic size; the stem of one, a *Bromeliaceæ*, was from 12 to 14 feet in length before it spread out into leaves: as it was not in flower I could not determine to which genus it belonged; I considered it a *Tillandsia*. Several others of the families related to that genus cover the rocks with their foliage; each like a natural cistern, yielded us upwards

of a pint of water—that which was on the top, clear and pure, the remainder filled with residue and a slimy matter peculiar to the plant: the water is, however, well tasted, and our Indians drank copiously of it. A *Commelinacea*, with a stem 4 feet long, bore an umbel of yellow flowers, the delicate structure of whose petals contrasted widely with their rigid sepals. I recognised several species which I had observed in Roraima, the flora of which, in many respects, resembled that of Mount Warima: the splendid *Utricularia* was there, but the rocky ground not affording sufficient moisture, it grew from between the leaves of the watery *Tillandsia*. It had a strange effect to see its stem adorned with magnificent blue flowers rising above the summit or crown of the *Tillandsia*. Surrounded by these magnificent plants I turned towards the panoramic landscape spread before us. To the N.E. the eye reaches to the Sarisharinima mountains, along the foot of which we had been so lately toiling; they stretched like a wall from W. to E., o'ertopped by the lofty Mount Paba; its summit enveloped in thick clouds. In the E. we discovered the mountains of Méréwari, which turn back the course of the river so named, and prevent its junction with the Parima. Having ascended about 200 feet higher, we overlooked the mountains to the S. and W. of us, and could distinguish rising above the horizon the groups of Maravaca and Yéonamari (Duida): the Paramu (Padamo) flows by the first, and the Orinoco passes by the southern side of the latter. At a distance their structure resembled much that of Roraima, but I presume they are higher.

Large columns of smoke rose in a S.E. direction, where we were told was a settlement of Macu Indians on the banks of the river Awari: further southward we saw the mountains of the Ocamo which we had just left. The latitude of Warima is 4° N., longitude deduced by reckoning, $65^{\circ} 5'$ W. These granite mountains of Warima, stretching to the northward, form the division between the tributaries of the Parima and the mighty Orinoco. The rock is fine-grained syenite, traversed in a W. by N. direction by numerous veins of quartz from 1 inch to 3 inches broad. Here we met again with thickets of palm-trees, the manicole of the coast regions; it grows in marshy soils which receive a sufficient supply of water from the granite platforms. After we had descended for about 1300 feet, we followed a rill which ran W.S.W., and crossed soon afterwards the brook Yawarui, which flows into the river Matakuni a tributary of the Paramu. We crossed the Matakuni, 3 miles further W.S.W., where it was about 10 yards wide. In Arrowsmith's map of

* The specimens which I brought with me have proved it to be the reindeer-moss (*Lichen rangiferinus*, L.), which at a certain elevation appears to be dispersed all over the globe.

Columbia a river of this name appears as a tributary of the Ocamo, but the natives whom I have hitherto met with know nothing of it. The Matakuni, along which we were travelling, has its sources two days' journey further N.

5th.—We continued our course to the W.S.W. and passed over mountains with savannahs upon their summits. An *Eupatorium* of moderate growth overspread large pieces of ground; its leaves were characterised by extreme bitterness, combined with a slight aromatic taste.

The summit of these elevations at first looked to me to be covered with snow, an appearance caused by two species of lichen, which densely covered the ground; it was of pure white, and I do not remember any species in South America which could vie with it in whiteness. After the morning dews this lichen is soft and pliable, but when the sun reaches the meridian it becomes rigid. It resembled the reindeer-moss, but the great difference in the climate prevented my supposing it to be that species.*

We had great difficulty in finding water, and it was late ere we reached a small spring, near which we took up our night's quarters. The cold was intense, from which our blankets gave us very inadequate protection. At 2 A.M. the thermometer stood at 57° , at $\frac{1}{2}$ past 5, at 56° Fahr.

7th.—The morning was fair and cloudless, and we saw the high mountains of Maravaca and Yeonnamari quite distinctly: they bore from S.W. to W. by S., comprising an extent of 30° , at a distance of no less than 40 miles. A nearer range stretched W. by N. and E. by S., and was met by transverse ridges running N.N.W. and S.S.E.; along the latter flows the river Kundanama. On these mountains large patches of wood alternate with savannahs; the grass of the latter was burning in several directions, and the horizon was obscured by large columns of smoke. We had a toilsome journey across the mountain ranges ere we reached the narrow valley of the Kundanama, a tributary of the Paramu. We passed it where it was about 30 yards wide, and where the Indians had made a bridge of two trunks of trees, with a balustrade of lianas, across a cataract. Here we found two cabins of Maiongkongs and Guinaus, containing twenty-three persons, but augmented by a party of seventy men of the Maiongkongs, returning from a visit to the upper Ventuari (called by them Paraba), which gave the place a more populous appearance. They, too, had taken alarm with regard to the Kiri-shanas. Large baskets of cassada bread were hung up in various directions, while on a small barbacot we observed them smoking thousands of that species of worm which I have before described. Here we obtained another supply of cassada bread, ready made, which enabled us to proceed on our journey without delay. I was,

however, obliged to leave behind one of our Indians, who was in such a weak state, from low fever, that we had had to carry him in his hammock. Lat. by two mer. alt. $3^{\circ} 57' N$.

8th.—We had a difficult ascent across mount Kikiritza, rising about 3000 feet above the Kundanama. On its summit we found again a region covered with low bushes and tufts of white lichen.

Mosses are generally found only in humid places, and here, where everything bore the stamp of dryness, and the vegetation was generally stunted, this profusion of mosses and lichens was surprising. They consisted not entirely of the species of lichens just mentioned, but of mosses which clothed the branches and trunks of the trees, and covered the ground to such a thickness, that on sitting down one might have fancied oneself reclining on the softest downy cushion. Mosses, it appears, therefore, do not require continued moisture. At noon we reached a cabin of Maiongkongs lately built: it contained thirty-two persons, the greater part of whom were young people. They had had intimation of our coming, and had gathered for us some of the fruits of their new plantations; among the rest were some pine-apples, small in size, but surpassing in sweetness and aroma any other I had tasted previously, even those at Watu Ticaba, which I then thought so superior.

In the direction of $N. \frac{1}{2} E.$, at a distance of $1\frac{1}{2}$ mile, rose a high peak, called by the natives Arapami, remarkable for a colossal mass of rock, which rises perpendicularly on its southern side. The little river of the same name flows along its foot to the S.E., and joins the Kundanama.

We were delayed several hours to hire fresh people in lieu of some of our crew, who were no longer able to go through the fatigue of carrying our baggage over the mountains; and here I witnessed what I had not before seen, the Indians bleeding each other as a remedy for over fatigue. I found the Macusis and Wapisianas cutting each other's legs with a piece of rock crystal, an instrument to which they ascribed particular virtue, refusing instead of it my offer of a lancet.

The mountains continued in a N.N.W. and S.S.E. direction. Their summits must be sometimes exposed to tremendous tornadoes, to judge from the trees lying prostrate over large extents of ground. So great was the number of trees thus felled, as to form barriers which we found it difficult to surmount.

While traversing these mountains we saw a number of that most beautiful bird the cock-of-the-rock, or rock manakin (*Rupicola elegans*), and I had an opportunity of witnessing an exhibition of some of its very singular antics, of which, though I had heard stories from the Indians, I had hitherto disbelieved them. Hearing the twittering noise so peculiar to the rupicola, I

cautiously stole near, with two of my guides, towards a spot secluded from the path, from 4 to 5 feet in diameter, and which appeared to have been cleared of every blade of grass, and smoothed as by human hands. There we saw a cock-of-the-rock capering to the apparent delight of several others. Now spreading its wings, throwing up its head, or opening its tail like a fan; now strutting about, and scratching the ground, all accompanied by a hopping gait, until tired, when it gabbled some kind of note, and another relieved him. Thus three of them successively took the field, and then with self-approbation withdrew to rest on one of the low branches near the scene of action. We had counted ten cocks and two hens of the party, when the crackling of some wood, on which I had unfortunately placed my foot, alarmed and dispersed this dancing company.

The Indian, in order to obtain their beautiful skins, looks out for these places of their diversion, which cannot be mistaken; there he hides himself, and armed with his blowpipe and poisoned arrows, awaits the arrival of the dancing party. He does not fire till they are so eagerly engaged, to all appearance, in their sport, as to allow him to bring down four or five successively ere the rest take alarm and disperse. Senhor Ayres told me it would be easy to procure, in the vicinity of the river Uaupes, from 200 to 300 skins during the pairing season, when the cocks are more particularly disposed to congregate, and exhibit their beauty in these strange capers, to win the affections of some favourite mate.

After a gradual descent to the Mahamé, which flows S.S.E. to the Kundanama, we met again with palm-trees and *Heliconias*.

10th.—The mountains continued in parallel ridges, slightly deviating from N.N.W. and S.S.E., but of less height, and our descent was considerable. The air was warmer, and the thermometer at six A.M. stood at 65°. The white lichen had disappeared, and the other species no longer formed a compact turf. At the height of 4000 feet, it was replaced by a species of *Lycopodium*, which covered whole tracts, and gave them the appearance of green meadows. I saw this species for the first time, which, like most of its congeners, is a prostrate plant. Among these patches there was likewise another species, the reproductive organs of which ended in apparent spikes, while on the former they terminated in branches. The latter reached a height of from 4 to 5 feet.

We crossed the streams Manzaba and Marawia, and entered with it the basin of the Paramu, on the banks of which river we arrived at three o'clock in the afternoon. I was disappointed in the Paramu, which I had believed to be a much larger river. Where we first fell in with it, in lat. 3° 50' N., it was about 40 yards in width: its water of a muddy appearance: the current

swift, running S. about 3 miles an hour, and broken by numerous boulders of a coarse-grained granite, which in these regions prevails at the foot and summit of the mountains. It rushed impetuously along, forming numerous falls. In the maps it appears under the name of Maquiritari or Padamo; but the Maiongkongs and Guinaus, inhabiting its banks, call it Paramu. We encamped on its left bank, while our Indians proceeded to the opposite side to take up their quarters in a deserted cabin. The rain fell, towards evening, in torrents.

11th.—After crossing the river, we continued along it, in a S.S.W. direction, for several miles, and then turned in a more westerly direction to visit the settlement of one of our chief guides, a Maiongkong. We crossed the small river Kurikanama where it formed a very fine fall, and flows, in a S.S.E. direction, into the Paramu. The Cuyaka, which we were following, falls into the former. We reached, at noon, the Indian settlement, situated on a small hill, rising about 80 feet above its shore. It consisted of two large round cabins and a mud-house, in the midst of mountains rising one above the other as far as that called by the Maiongkongs Maravaca Huha, which bounded the scene, and which appeared to me, as far as I could judge at so great a distance, to be the highest part of this range, which, in its general configuration, resembles Roraima, though less steep, and not presenting the same unbroken wall. The Indians were anxious to make us welcome. I counted sixty-four individuals, and was told that many were absent. They were well-formed, and the greatest part of them perhaps not above twenty-four years of age. They were painted and dressed like those of their tribe already described. The women had the hair of their head cut short, and were not, like others of their tribe, in a state of perfect nakedness. After the first ceremonies of reception, the women brought us divers fermented drinks, followed by a whole array of little pots filled with sauces, and a number of neatly-plaited flat baskets containing each a fresh cake of cassada bread. We did not see any fire-arms among them, but few of the men were without cutlasses of British manufacture, which they take great pride in keeping bright.

The Maiongkongs are inveterate smokers: while travelling across the mountains at every halt a fire was immediately kindled, round which they squatted to prepare their cigars, which are made by wrapping up the tobacco in leaves of Indian corn. It is customary, on the arrival of a stranger at their huts, for several individuals to offer him their cigars, after partly smoking them themselves. To me, who did not smoke, this was at all times a severe ordeal.

The Maiongkongs are a proud and haughty tribe. With one

end of his waist-cloth thrown over the shoulder, he stalks about as if the world were his own. He takes great pains with his appearance, and dresses his hair, dividing it over the front with the greatest nicety. A war-club, different from those of the Caribis and Macusis, is his constant companion. It is pointed at the end; and when he sits down or squats, he sticks it into the ground before him. Like all the Indian tribes, they awake early, and chatter to each other while lying in their hammocks. At 5 o'clock they rise to bathe in the neighbouring brook or river, while their morning meal is preparing by the women, after which they go out to hunt, or lounge in their hammocks.

They eat also at 9 o'clock, at 12, and about 3, and make a grand meal at sunset. This we observed they took before their huts, when the sauce-pots formed the principal dishes. To these meals our people were always invited, sometimes by several parties at a time, so that it seemed a continual feast.

This settlement is famed for its manufacture of baskets and blowpipes; and here I had at last the satisfaction of seeing the plant which produces those wonderful reeds which the Indians of Guayana hold in such high esteem for the construction of their blowpipes. The reader of Humboldt's Personal Narrative will recollect that the Indians who returned to Esmeralda from the gathering of the Brazil-nuts, brought with them reeds which were from 15 to 17 feet long, entirely free from anything like a knot. They were quite straight and smooth, and perfectly cylindrical. M. de Humboldt, however, could not determine to what genus they belonged. I found that they grew at the foot of Maravaca, and ascertained them to be a new species of *Arundinaria*, which grows in large clusters like the bamboo—the first joint rising, without a knot in the old plant, from 15 to 16 feet: about that height, the first branches strike off, and reach from 30 to 40 feet higher. The stem is seldom more than $\frac{1}{2}$ an inch in diameter, and its own weight gives it an arch-like bend, which adds to its graceful appearance. It is peculiar to the sandstone ridges of the Upper Orinoco, between the rivers Ventuari, Paramu, and Mavaca. The Indians call it Curata; and the Maiongkong and Guinau Indians, who inhabit these regions, are called the Curata people.

The mean of seven observations gave our lat. $3^{\circ} 47'$ N. From this I estimated Mount Maravaca, the highest of the group, to be in $3^{\circ} 40'$ N. lat.; and Kurianiheri, which is of pyramidal form and isolated, in $3^{\circ} 38'$ N. lat. The mountainous nature of the place and the thick woods prevented my measuring any base-line to ascertain the height of Maravaca; I estimate it, however, to be from 10,000 to 11,000 feet above the sea. Water boiled at the Maiongkong village at $205^{\circ} \cdot 5$ (about 3500 feet). The temperature

at sunrise was from 59° to 61° ; its highest, shaded by the tent, was 88° ; and at sunset, from 78° to 80° . At 9 A.M. a slight breeze rose from the E., which continued till mid-day, when it died off.

Before we left the settlement we procured what, to us, was a great prize—a small calabash full of salt from some Guinaus who had come from the river Cunucuma, making the journey in four days, from which I supposed its distance was about 50 miles in a westerly direction. They told us that the breadth of the river near their place was about 100 yards, and that none but of their own tribe lived there. They, like the Maiongkongs, are famed for the manufacture of Cassada graters, in which they carry on a brisk traffic with the neighbouring tribes. The party consisted of four men, tall and well made. Besides graters, they had a number of new hammocks, for which our Macusis bartered. My stock of merchandise was, however, so reduced, that I could not supply them with articles to pay for their purchases; nevertheless, though the Guinaus had never seen them before, they trusted to their word that they would send back the payment by one of the men who were to accompany us to Pirara, where I expected to find a new supply of goods. The purchases consisted in hammocks, cassada graters, waistcloths, girdles of human hair, and ornaments of maccaw and parrot feathers. I procured also a few bivalve shells from them from the Cunucuma, which they wore as ornaments; they belonged to a species new to me, and though perforated in order to fix them to a necklace of monkey's teeth, they were not so injured by it as to render them useless for description.

15th.—We started from the Maiongkong settlement, and embarked on the Parámu, which we followed in a S. course. Somewhat below the river Puruniama a series of falls commenced, where we met with a serious disaster. One of the small corials, in passing a fall, filled with water and sunk; and though the corial was recovered, her load was almost entirely lost: among other things was our newly-purchased stock of salt, and all our plates, which, although not of the most valuable metal, had rendered us the service of the most costly.

A similar accident shortly afterwards befel another corial, which, however, we got ashore before she sunk, with no other damage than the wetting of her cargo, which a bright sun soon remedied. The river, for the space of 300 yards, was a succession of rapids and falls; some so large and dangerous that we had to unload the corial five times, and to carry the luggage over land.

16th.—The river continued the same; indeed some of the falls were from 15 to 20 feet perpendicular, and we had to unload repeatedly. About noon we reached the cataract Marivacaru,

the largest we had yet passed; the river here precipitated itself upwards of 30 feet over a ledge of rocks; we had, of course, to unload, and carry the corials and luggage over land. Thence we followed the river in a S.E. direction, till we saw at some distance before us, what I first mistook for clouds of white smoke from some fires kindled by some of our Indians who had gone on before. But I was soon undeceived; it was a sheet of foam formed at the junction of the river Kundanama with the Parámu. This river, coming from the N.E., is about 35 feet higher than the Parámu. Before it joins it, at its mouth, is a small island, by which its waters are divided into two streams, which rush down over two grand cataracts, one of which is 20 feet high. The dense white foam contrasts strongly with the dark colour of the Parámu, while clouds of mist, formed by the contest of the waters, rise high into the air, and hang like a veil over the verdure of clusters of palms, and thick umbrageous trees.

I know of no other instance where a river joins its recipient in so turbulent a manner. I estimated the breadth of the two falls at 300 yards; at their foot they formed a large basin, on the southern shore of which thick masses of sand were deposited, brought down by the Kundanama from the sandstone ranges. It will be recollected that we had crossed this stream, on the 1st of February, in lat. $3^{\circ} 57' N.$, and whence its circuitous course has been S.W. by S. to its junction with the Parámu, which, according to my observations, is in lat. $3^{\circ} 30' N.$ The lat. of our camp this night, at 4 miles distance, being $3^{\circ} 26' N.$

17th.—After passing the cataract Cavana, we had comparatively smooth water; but previously, the Parámu surpasses in the number and height of its fall any river I have ever before seen; and truly thankful I was to the Almighty that it had pleased him to allow us to reach their termination in safety. Many an anxious moment had I passed during the two preceding days. The river now widened to about 150 yards, its banks became low and were clothed with rich verdure and clusters of palms, amongst which we recognised the *Coucourite*, *Curua*, *Lou*, *Popo*, *Araho*, and saw several others which were unknown to us.

From the mouth of the river Watamu the Parámu took a sharp bend towards the N.W., and brought us opposite to a wall-like range, the continuation of the mountains of Maravaca. The sun reflected its rays on their bare sides and made them appear of snowy whiteness; Wataba Siru bore N.W. by N.; its summit, an isolated cone, was wrapped in clouds. The N. part of Yéonamari (Duida) bore W.N.W.; it extended further S. than we could see, and appeared to us not so elevated as Wataba Siru by 2000 feet. We halted at noon at a Maionkong settlement, beyond which the owners of our corials had stipulated that

we should not take them, but I had been led to expect to be able to purchase here a large corial, which they said had just been finished.

19th.—The canoe in question arrived this day; it had been built near Mount Wataba Siru, and had taken the natives more than eight days to transport to the Parámu; it was sufficiently large for our purposes; the length was 33 feet, and breadth 5. The owner was dressed in high style in some finery brought from Angostura, where he had been lately. He spoke a few words of Spanish, and appeared in every respect a very intelligent man. Much care as he had bestowed in covering his own person, he did not seem to think it necessary to be so particular about his wife, who went in a state of nature. We agreed for the price of the canoe, a part of which was paid in cutlasses, axes, calico, knives, &c., and we all went to work to fit her with temporary benches to carry us to Esmeralda.

20th.—We started in a S.W. direction this morning in our new canoe. During the last three days we had had daily thunderstorms and rain, and the river had risen upwards of a foot. Some falls below the settlement were passed without accident; the canoe stood the heavy surge admirably, and though large, answered the helm well. We had every reason to be satisfied with our new purchase: she was strongly built of cedar, and was very light, a quality which, as I had not yet given up all hopes of proceeding by the Mavaca, adapted her for being hauled over land. The Maiongkongs are excellent boat-builders, and they can complete their work with fire and axe in less time than any other Indians. Below the last cataract of the Parámu we were welcomed by a pair of fresh water dolphins, which followed us, sporting and gamboling around the canoe. Our course from this point was S. by E. as far as the Matakuni. To-day I estimated the breadth of the Parámu to be 270 yards; its banks were low, and the current much less than the preceding day.

Among the falls we saw many of the fish named *Pacu*; they differ in shape and colour from the *Pacu* of the Essequibo and Mazaruni, and are of a dark-blue, approaching to black. After reaching the smooth water, whenever it was shallow we saw numerous species of the tribe *Siluridae* and others. On the shore we noticed the gigantic *Oubudi* tree, covered with its bright scarlet or yellow fruit. The heat became very oppressive; the thermometer, exposed to the sun, rose to 123°. Shortly after noon I observed round the sun's disk a large halo 43° in diameter; the exterior of the circle was white and the inside tinged with yellow, and which lasted till the sun was within 25° of the horizon. Though I had frequently seen halos round the moon, I had never before noticed one round the sun. The day was

hazy, and in the N.E. were heavy thunder clouds. Towards sunset we reached the river Matakuni, flowing from the N.N.E., which we had previously crossed while traversing the mountains to the northward: it was there only a small brook scarcely 10 yards wide, here its breadth was 150 yards. After midnight I obtained with difficulty, on account of the cloudy state of the weather, an observation of α Centauri, which gave our lat. $3^{\circ} 2' N.$

I have already observed that the Matakuni appears in the maps as a tributary of the Ocamo. On inquiry I could not ascertain that there was any Matakuni which flows into that river; the Indians were only acquainted with the tributary of the *Parámu*.

21st.—Before sunrise we were in our canoe, expecting in a few hours to enter the Orinoco. The waters of the river Matakuni are white, and render the *Parámu* much lighter in colour than before its junction. There was no difference in the temperature of the two rivers; the waters of both were 82° , while the air was 73° .

We were still followed by the dolphins, at least we fancied they were the same which had joined us the preceding day, and under their escort at 9 A.M. we entered the Orinoco. The course of the *Parámu* had been latterly S.E., but its last reach is S. $21^{\circ} E.$, and it is about 300 yards across; the Orinoco, above the junction, is not much broader: lat. of confluence $2^{\circ} 54' N.$, or 18 miles to the southward of its usual position in maps; the bearing of Duida consequently differs, and really is, N. $40^{\circ} W.$ by compass. When the natives pointed out the mountains to me where they said were the sources of the Orinoco, and which, according to my calculation, are in $2^{\circ} 30' N.$ lat., I thought that the river made a sweep to the eastward of N., but now I feel convinced that it pursues a W.N.W. course from its source to its bifurcation below Esmeralda. A few miles W. of the *Parámu* the width of the Orinoco increases to 400, 500, and 600 yards. We met with numerous sandbanks, and, as we had been told, many difficulties as we advanced; the river was frequently, the whole way across, not more than 12 or 15 inches deep, and we had to dig channels for our canoe to allow of its passage. There was so little current that in many places the water appeared stagnant, and was covered with scum and bubbles; when the canoe scraped the bottom, it turned up a species of fresh-water algæ of a green colour and covered with mucous matter.

The banks of the river were low and the adjacent country flat, and only now and then broken by isolated low hills densely wooded: to the northward, however, the Duida and its adjacent mountains seemed to rise to the clouds. A pyramidal mountain

was remarkable among the rest for its shape, but as it was our Indians' first visit to the Orinoco, they could not tell me its name.

Hearing a dog barking on the right shore, we pulled towards the place to ask for information, but in vain: we found a single hut watched by a fierce dog, and apparently only tenanted by some females. We inquired the distance to Esmeralda in all the Indian languages we could muster, but could only obtain answers in an unknown tongue: nor did we get a view of the tawny beauties, who hid themselves behind the door of their cabin, and were protected by their watch-dog, like another Cerberus, from all intruders.

We halted at a sandbank opposite the river Wapo (Guapo), where myriads of sandflies swarmed and most unmercifully tormented us, as indeed they had done ever since we had entered the Orinoco. This infliction, under a heat of 130° in the sun, to which we were fully exposed on the broad river, was almost intolerable, nor did it cease till the setting in of darkness, when a gentle breeze fanned our burning faces. By four observations of northern and southern stars we halted in $3^{\circ} 7' N.$ lat.

22nd.—We started at 6 o'clock in full expectation of seeing Esmeralda. Light fleecy clouds enveloped Mount Duida, but they vanished after the sun rose above the horizon, and for the first time we had a full view of these stupendous rocky masses, partly illuminated by the rays of the morning sun. Our progress was not without difficulty; we got aground several times on sandbanks, and had to traverse from shore to shore to avoid shallows and to follow the winding course of the river's channel. At length we came in view of a fine savannah extending to the foot of the mountains, which I knew, from Humboldt's description, to be that of Esmeralda, and some canoes tied to the river's bank showed us the landing-place. I cannot describe with what feelings I hastened ashore; my object was realised, and my observations, commenced on the coast of Guayana, were now connected with those of Humboldt at Esmeralda.

It is but due to that great traveller to acknowledge that at times when my own physical powers were almost failing me, and when surrounded by dangers and difficulties of no ordinary nature, his approbation of my previous exertions cheered me on, and encouraged me to that perseverance which was now crowned with success. The emaciated forms of my Indian companions and faithful guides told, more than volumes, what difficulties we had surmounted.

The village was a few hundred yards from the shore; half way to it we were met by the alcalde, who welcomed us in Spanish. His attire certainly did not bespeak his dignity, being nothing but a shirt made of the bark of a tree called marima,

which covered his loins. He led us to his hut, where his wife, children, and grandchildren were assembled, and where we soon found that for the present, at least, he was the only adult male inhabitant of the place. His Señora put some smoked fish and cassada before us, while he made incessant inquiries respecting European affairs; he spoke of France and Paris, England and London, Prussia and Berlin; he inquired what states were at war, and what Ferdinand VII. was doing in Catalonia. The change of affairs in Spain was new to him, and he could not conceive how a queen could govern there: equally wonderful to him was Donna Maria's ascent of the Portuguese throne. He spoke of Napoleon, and, indeed, showed that he had a very fair acquaintance with European matters, which was accounted for when he told me that he had served during the late revolution in Columbia as a sailor on board a privateer under a Catalonian commander, and had been much in the West Indies. When I had answered his inquiries, in my turn I was equally anxious to obtain from him some information respecting my further route. I was very unwilling to descend the Cassiquiare, by which I knew it was at least 200 miles further to Bararoa than by the Mavaca and Padaviri, which on many other accounts would have been the route I should have preferred. We had no decent clothes left in which to appear among civilised people, neither had we any money, which on the Rio Negro would be requisite in order to buy what we wanted for our sustenance; whereas the Indians of the Mavaca would have supplied us in exchange for the articles we had still left to barter with.

Old Antonio Yarumari prefaced what he had to say by telling me that he was born at the banks of the river Siapa, and was of the Ipavaquena nation, and was therefore well acquainted with the rivers and portages; that in the low state of the rivers at that season it was impossible for us to proceed by the Mavaca. To corroborate the truth of his statement he called forth a miserable, half-starved looking being of an Indian, whom we had not previously observed from his being hidden behind a sugar-mill which occupied part of the room. This man, Antonio told us, was from Brazil, or, as they call it, Portugal, and had journeyed several times with a Frenchman between Bararoa and Esmeralda.

According to their joint information it appeared that the mouth of the Mavaca was 4 days' journey from Esmeralda; the Indians proceed up it for 5 days, and then journey one day and a half over land, passing a large mountain when they come to the river Siapa or Durowaca; this they follow only for a short distance, and ascend one of its tributaries, the Mandavaca, to the Manchissen, which flows into the Marari, a tributary of the Padaviri: the Marari once entered, they reach Bararoa in 7 days

more. But this route, they said, was only passable during the winter season, or from May to September. As I saw no reason to doubt their statement, however contrary to my own wishes, I thought I could do no otherwise than follow their advice and the course of the Cassiquiare, and this therefore I made up my mind to do.

Thirty-nine years had now elapsed since Alexander Von Humboldt visited Esmeralda, and found in the most remote Christian settlement on the Upper Orinoco a population of eighty persons. The cross before the village still showed that its inhabitants professed to be Christians, but their number had dwindled to a single family—a patriarch and his grandchildren. Of six houses which we found standing only three were inhabited; their plastered walls and massive and well-finished doors showed they were not built by Indians. Before one of them, which we took to have been the church or convent, we observed a small bell hung up in the gallery, bearing the inscription “San Francisco Deasis Capp. 1769.” Nature, however, had remained the same: Duida still raises its lofty summit to the clouds, and flat savannahs, interspersed with tufts of trees and the majestic *Mauritia* palm stretch from the banks of the Orinoco to the foot of the mountains beyond, giving to the landscape that grand and animated appearance which so much delighted Humboldt.

A ridge of heaped-up boulders of granite, named Caquire, in forms the most grotesque, and in some places looking like vast edifices in ruins, occupies the foreground, and at its foot Esmeralda is situated. Some pious hand has planted a cross on the largest of these granitic blocks, the airy form of which stands boldly in relief with the blue sky as a background, and heightens the picturesque appearance of the surrounding scenery: it also reminds us that although nature and man appear in savage state, there are still some in this wilderness who adore the Deity and acknowledge a crucified Saviour.

The highest point of the Duida is, according to Humboldt's measurement, 7147 feet above the savannah,* or 8278 feet above the sea. The Indians of the rivers Paramu, Cunucuma, or the Maionkongos, or Maquiritares, in general call the Duida Yeonamari, and Esmeralda Mirara. Towards the W.N.W. the mountains rise gradually to the height of about 2000 feet, clothed at first with dense forests, succeeded by rocky cliffs, only here and

* M. de Humboldt measured a baseline directed towards the summit of the mountain in order to ascertain the height of Duida. I measured a baseline, 725 yards in length, which ran parallel with the mountain. The horizontal distance proved 14,929 yards; the double vertical angles at the extremities $18^{\circ} 8' 37''$ and $17^{\circ} 55' 13''$; the elevation resulting from which was at point A 7145 feet, at point B 7155 feet. This agrees so closely with M. de Humboldt's measurement that it appears almost accidental; it is the more remarkable, since the operations were carried on with the sextant.

there sparsely covered with vegetation. The range extends in sinuous outlines towards the loftiest peak, which bears N. 30° W. from the village. Its base is covered with wood, from which an unshapen rocky mass rises boldly to a height of 4660 feet, and so steeply that it is impossible to reach its summit. From this point the range turns to the N.E. by E., throwing out buttresses and escarpments which look like the works surrounding a vast fortification. The most eastern point of the Duida bears N. 8° E., distant about 10 miles from Esmeralda; but another rocky mass of more wall-like form rises still further N. of Duida, and stretches E. and W. towards the banks of the river Parámu; beyond are the mountains Wataba Siru, Ekui, Mariaca, Satawaca, and Maravaca, all belonging to the same system, but Maravaca is certainly the most elevated of them all, and cannot be less than 10,000 feet above the sea.

Having ascertained that Roraima and the adjacent mountains consist of quartzose sandstone as well as the Maritani and Sarisharinima mountains and Paba, I was led to believe from the similarity of their appearance that the Maravaca group was of the same formation, in which I was confirmed by some specimens which Mr. Morrison brought me. I felt sure, also, that Duida, which evidently belonged to the same group, could not be different, although M. de Humboldt states it to be granitic; and to satisfy myself I made an excursion to that part of the mountain where the dense wood ceases, and the rocky mass rises almost perpendicularly: here, as I had previously found at Maravaca, the summit of the mountain consisted of 4000 or 5000 feet of quartzose sandstone, resting on the granite below. Numerous veins of quartz traverse this sandstone in various directions, and are analogous to those of the Crystal Mountains near Roraima. The rock crystals and chlorite quartzes on the Duida have been mistaken for diamonds and emeralds, and have given rise to the erroneous name of Esmeralda for the miserable village so called. The heaped up boulders I have already spoken of as at the foot of the range, are chiefly of granite interspersed with large pieces of quartz of a highly crystalline nature, and veins of the same rock frequently traverse the boulders. Spots of dazzling whiteness are observable along the precipitous declivities of Duida when the atmosphere is clear and the sun reflects his rays on its walls, which consist, no doubt, of quartz; and the numerous fragments which are found on the savannahs below and in the beds of the streams which flow from it, prove its abundance throughout the range. A charming prospect presents itself from the cross of which I have already spoken. To the north the high mountains, with their outline strong and bold, were near, and softening into blueish tints as they recede in the distance. The course of the Orinoco upwards can be traced for a considerable distance. A few incon-

siderable and isolated round hills rise on either side of it, and in the west; elsewhere dense forests cover the plain. Below is Esmeralda looking like a deserted village, the noon-tide heat and prodigious swarms of sandflies* confining the few inhabitants to their houses; savannah extends from the village to the river, a few stunted trees, and some *Mauritia* palms, rising from the thick grass, on which numerous tumuli of a species of termes, from 3 to 4 feet high, and black like the soil of which they are built, form a singular and remarkable object. Such is the prospect of Esmeralda on the Orinoco.

M. de Humboldt observed that the inhabitants of Esmeralda "lived in great poverty, and their miseries were augmented by large swarms of mosquitoes," an observation equally applicable at the present day. The inhabitants are miserably poor, and as to the numbers of sandflies, from the first dawn to nightfall, it surpassed anything I had ever seen, and "thus it is with us the whole year, even during the winter season, we are equally plagued at night by these mosquitoes," said old Antonio; nor does use make the natives less sensible of their bites, and they seemed to take quite as much pains as we did to keep these blood-suckers from their hands, face, and feet. In their houses they place a kind of latticed door before the entrance, made of fine pieces of palm-wood, just sufficient apart to admit light, whilst in some measure it keeps the insects out. I substituted my musquito netting, which answered the purpose better.

The inhabitants do not cultivate the grounds in the immediate vicinity of Esmeralda, not considering the soil any longer worth planting from its being exhausted by repeated crops: their provision grounds are several miles distant. Antonio, finding we meant to stay two or three days, set out in his canoe for these plantations, promising to return the following evening. Good as his word he came back to us next day, loaded with some fine bunches of plantains, and a small basket of oranges and limes, an unexpected and most welcome treat to us. He brought us likewise some Brazil-nuts, and a fruit which he called *Pentari*; it was yellow, round, the size of a small apple, and of a highly delicious flavour. I believe it was a *Sapotaceæ*, although I could not discover the bony seeds of that tribe—indeed the whole inside was soft. The means of eight observations by merid. alt. of the stars α Aurigæ, α Columbæ, α Argus, α and β Centauri, α and γ Ursæ Majoris, gave me $3^{\circ} 11' 3''$ N. for the latitude of Esmeralda. M. de Humboldt determined it $3^{\circ} 11' N.$

* English colonists misname generally the gnat of the tropics, musquito. The musquito, a small fly, as its name bespeaks, is a species of *Simulia*, and is called in the colonies, sandfly; the gnat, or zancudo of the Spaniards is a *Culex*.

V.—*Journey from Esmeralda, on the Orinoco, to San Carlos and Moura on the Rio Negro, and thence by Fort San Joaquim to Demerara, in the Spring of 1839.* By Mr. R. H. SCHOMBURGK, CORR. MEM. R. G. S.

AFTER a stay of three days at Esmeralda, during which we completed our new canoe, and made other preparations for our long voyage, we left it on the afternoon of the 25th February, and continuing the descent of the Orinoco to the W.N.W. for 13 miles, during which it receives the small streams Mantari, Sodomoni, and Tamatama from the N., and the Cuca from the S., we arrived at the remarkable bifurcation of this river, so well and so fully described by Baron Humboldt, that little is left for any subsequent traveller to add. From this spot the principal branch pursues its course at N. 74° W., winding round the foot of the Sierra Parima, and eventually, after a semicircular sweep of about 800 miles, falls into the Atlantic Ocean: the lesser branch, named the Cassiquiare, or Cassisiare, by the Guinaus and Maionkonges, strikes off at a right angle to the S.W., and preserves this course for about 120 miles direct distance to the Rio Negro, near San Carlos; thus connecting the two great basins of the Orinoco and the Amazons. From the entrance of the Cassiquiare the summits of Cerro Duida bore N.E. nearly, but the clouds prevented my getting an exact bearing. The width of the stream was only 100 yards; the rate of current 7-10ths of a mile per hour. The river winds, in short turns to the southward; it is shallow, and much obstructed by sand-banks, studded with rocks of granite; its banks are high, and covered with dense but not lofty vegetation. Among others, I remarked the Siruaballi, a species of *Laurus*, and the prickly Sawarai palm (*Astrocaryum Jauari Martius*).

26th—28th.—We passed the small streams Caripo and Pamoni, which join the river from the E. A little S. of the latter I observed, on some granite rocks, several circles and lines; they were the first Indian picture-writing we had seen since leaving the Essequibo. Opposite the Curamoni, which falls in from the eastward about 40 miles from the Orinoco, we again measured the current, and found it as before. Immediately S. of this point the waters of the Cassiquiare, in the rainy season, are said to find a second channel to the Rio Negro, more to the westward; it is called the Itinivini. At that period the current runs upwards of 5 miles an hour, and fills the bed of the Cassiquiare to overflowing. Such was the case when Baron Humboldt ascended this stream in 1800. At the time of our descent, the banks, where the Itinivini is said to flow off, were from 10 to 12 feet above the level of the water. Lat. of our camp this evening was 2° 28' N.

March 1.—The river runs S.S.E. for about 7 miles, when it

turns again to the westward, near the outlet of the small lake of Vasiva, which we passed this morning on our left. At 15 miles lower down, the streams Carie and Mumuni join from the W.; and 3 miles below, on the E. bank, is a remarkable rock of granite, rising above the surrounding trees, which I estimated at from 50 to 60 feet high. Lat. by merid. alt. $2^{\circ} 14' N$.

2nd.—A ledge of granite rocks and several islands obstruct the passage. At 2 miles below, the river Siapa, or Durawaka of the Indians, flowing from the Untaran mountains in the E., joins the Cassiquiare, in lat. $2^{\circ} 7' 50'' N$. This stream is 150 yards wide at its mouth, but is said to be much obstructed by shoals and rapids. At 5 miles below we landed at Mandavaca, or Quirabuena, a village of twenty houses on the eastern bank, the first inhabited spot met with in descending the Cassiquiare. Here is a church, a small square, and a population of about eighty creoles and Indians, whose chief occupation is in making ropes of the fibres of the chique-chique palm (*Attalea funifera*), which, at the time of the high waters, are carried to Angostura, on the Orinoco, for sale. Here is no padre, or priest; a missionary from Angostura, a distance of 600 miles, visits them once in two or three years; the "good fathers" of the mission, as they are still called, returned to Europe on the breaking out of the revolution. We were told that the Cassiquiare rises 15 feet above its present level at the time of the inundation: the village is 25 feet above the water. We slept this night at Santa Cruz, 7 miles beyond, on the western shore, a poor village of about eighty persons. Its lat., by observations, was $1^{\circ} 57' 50'' N$.

3rd.—We started, as usual, before day-break, by the light of a bright moon. At sunrise the river was covered over its whole breadth by swarms of ephemera, or day-flies, which flew against the stream. At 3 miles below, the river Pacimoni joins from the eastward; its entrance is about 300 yards wide, but, as far as we could see, it was surrounded by sand-banks, more remarkable from the dazzling whiteness of the sand contrasted with the very dark water of this stream. From the point of junction, the river, which had been flowing S.S.W., bends abruptly N.W. for 10 miles. Two hours after we halted at the Buena Vista, a village with a church and twelve houses, on the southern or left bank, and where we found the people troublesome. At five miles below, the Cassiquiare again bends sharp to the W., and pursues this general course for 24 miles to its junction with the Rio Negro. On its S. or left bank, just below the bend, a remarkable transported block of bare granite rises 150 feet above the stream. Humboldt named it Piedra de Culimacari, but the natives now call it Vanari. At its base is an impenetrable thicket of bamboos, palms, lianas, &c.; and a little to the right are other masses of

granite, one 40 feet high, resembling an obelisk in form, which supports another rock on its top; against this reclines another boulder, also bearing a smaller one on its summit, and a third block stands apart to the right of the others; the whole forming a picturesque and curious group.

It was at this spot that M. de Humboldt had observations for lat. and long., whence he deduces the position of the junction of the Cassiquiare with the Guainia and of Fort San Carlos. With the exception of the first night after leaving Esmeralda, I had an observation for lat. every night; and at this place agreed, within half a mile, of M. de Humboldt; but my estimated longitude, or by dead reckoning from Esmeralda—and I paid great attention to my courses and distance—differed 9' from the determination of that distinguished traveller. I should, however, have unhesitatingly adopted his position of Culimacari, if M. de Humboldt himself possessed greater confidence in his observations. A mistake also appears in the distance to Solano, which M. de Humboldt lays down at 21' W. of Culimacari; whereas, by my reckoning, it is only 12'. And it may be discovered, I think, in the traveller's own narrative, in which he says that he left the mission of San Francisco Solano at a late hour, to make a short day's journey,* and halted at 5 P.M.† near Culimacari. Now, supposing the relative situation of these two places to be correct, he would have made 21 miles direct in that short period; while at p. 419 he tells us that with all the strength of the rowers they could only make 9 miles in 14 hours.

At sunset we landed at San Francisco Solano, a village on the left bank inhabited by Cheruvichahenas Indians; it is rather larger than Mandavaca, and has a population of about 120; but is not so neatly built. The night was clear, and the lat. by mer. alt. of α Argus $1^{\circ} 39' 50''$ N.

4th.—By day-break we were already 4 miles from Solano; numbers of goatsuckers (*caprimulgus*) of white plumage, spotted near the tail with black, occupied the place of the ephemera of yesterday.

The Cassiquiare widens considerably on approaching its junction with the Guainia; several islands extend along its right bank, and large ledges of granite impede its course. Immediately at its mouth there is a small island on the left. Although the water of the Cassiquiare is much darker after the junction of the Pacimoni, that of the Guainia is still blacker; the united streams flow to the S.S.E., under the name of the Rio Negro. The breadth of the Cassiquiare at its mouth is about 550 yards; that of the Guainia about 600: the general course of the latter is from

* Pers. Nar., vol. v. p. 408.

† Ibid., p. 412.

the N.W., but the last reach before the junction comes from N. 10° W., while that of the Cassiquiare is from E. 20° S., thus forming an angle of 120° . The length of the Cassiquiare, including its windings, is 176 geographical miles. Lat. of junction $1^{\circ} 59'$ N.

The Rio Negro holds a general S.S.E. course from this point for about 70 miles; its current we found only $1\frac{1}{4}$ mile an hour. Passing between the right bank and the island of Mibita, we avoided the rapids of Uinumane, and in two hours arrived at San Carlos, a village of 400 persons, on the E. bank of this river, and chief place of the district. Immediately opposite, on the right bank, is the ruined square fort of Agostinho, almost covered with bushes; the breadth of the stream here, by measurement, we found to be 615 yards: in August it rises 15 feet above its present level. The Indians here are of the Paniba, Pure, Guari-china and Zanibos tribes; but there are neither negroes nor mulattoes. Lat. by mer. alt. of two stars, $1^{\circ} 54' 55''$ N.

In spite of all my inquiries I could gain little information in addition to that given by M. de Humboldt of the upper course of the Guainia, although the Justice Don Diego de Piná had travelled much in the interior, and, among other places, had visited the Raudal de Guaharibos, on the Orinoco, about 50 miles above Esmeralda. These Indians have retired, it is said, farther to the eastward, and are still hostile to any stranger entering their country. The river, says Don Diego, is scarcely more than 100 yards wide at the Raudal or Cataract, and lessens considerably above; the Gehette being the last stream of any consequence that joins the Orinoco as you ascend. He agrees also with my information as to the north-westerly course of the river below the Raudal: as to its sources he knew nothing, but my recent journey has so far set that question at rest.

6th.—We had no native pilot in our boat, and we therefore passed the island of San José, 7 miles below San Carlos, which forms the provisional boundary between Brazil and Venezuela, without knowing it. As we proceeded on our descent of the river we saw a large party of sixty persons, and eleven corials and canoes, on a rocky island, who were on a fishing expedition from San Carlos. We landed afterwards at the solitary hut of Senhor Cordeiro, formerly a lieutenant in the militia, but who on the breaking out of the Cabanno war fled from St. Isabel by the rivers Maraviha, Pacimoni, and Siapa, to San Carlos. He has since visited the mountain-chain whence these rivers have their source a second time in search of sarsaparilla; and I gained much valuable information from him respecting these regions, which is laid down in my map.

Before reaching Senhor Cordeiro's hut, we observed in the

distance a singular hill, which bore S. 28° E.; it was isolated and ended in three peaks, but night obliged us to halt before reaching it. Our lat. by obs. was $1^{\circ} 18' 30''$ N.

7th.—Early in the morning we passed the granite hill of Cocui, rising about 850 feet, at $1\frac{1}{2}$ mile from the E. bank of the river. It is bare and steep to the S., but has some trees on its E. and W. sides, and is of a remarkably picturesque appearance. Another hill of less height is situated about a mile N.E. of Cocui. Here was the dwelling place, about the middle of the last century, of the Manivitano chieftain Cocui, notorious for his cruelty and debauchery. He was the implacable enemy of the Jesuits, and devastated their missions. M. de Humboldt, when in San Carlos, in 1800, met the son of Cocui. Dr. Natterer, of Vienna, who ascended the Rio Negro to the junction of the Cassiquiare, climbed to the summit of the mountain of Cocui. In the afternoon we observed the Pirabuku chain of mountains, of which the S.W. angle bore S. 34° E. Threatened with a thunder-storm, we used all our exertions to reach Marabitanas, and landed there at 2 P.M., just in time to escape the rain.

San José de Marabitanas, the frontier fort of Brazil, is situate on the western bank of the river, and consists of a palisadoed mud embankment, mounting eight guns; two of which were English; seen from the river, the little fort, the church, and a row of houses extending along the banks, has a cheerful appearance. It is under the charge of a serjeant and six men, and the whole village contains about 150 persons. By mer. alt. of four stars I found the lat. to be $0^{\circ} 56'$ N., or 16 miles to the southward of its position in all extant maps. The somewhat elevated situation of the fort afforded an extensive view. The Pirabuku mountains bore from E. to E. 30° S., at a distance of about 30 miles, rising, probably, 1500 feet above the plain to the W. Isolated hills, as Cocui, appeared to form a link of communication between the chain containing the sources of the northern tributaries of the Rio Negro and the mountains of the Sierra Tunuhi, near the sources of the Xié and the Isanna, to the left bank of the Uaupes.

For about 5 miles above and below Marabitanas the Rio Negro takes a S.S.W. course, thence a W. course for 18 miles; when, after the junction of the Xié, it turns due S. for 45 miles, as far as the confluence of the Uaupes. At 6 miles below Marabitanas it receives the Mahuaba and Dimiti from the eastward; by means of the latter, and a small portage, the Indians of this district to the westward carry on a brisk trade with those of the Maturaca, Cababuri, and of the whole mountain-chain to the N.E.

We estimated the mouth of the river Xié at 150 yards wide; at the W. point of junction is the small village of San Marcelino

of 6 houses—yet even this scanty population was comparative society and cheerfulness to us, accustomed to the monotony of inland navigation, when sometimes weeks elapsed without a single habitation.

9th.—Near the small village of San João Baptista de Mabi we saw a large decked canoe waiting for the rise of the waters to enable her to navigate the stream. It is only at that period that the products of the forests, as zarzas, pucheri, jalap, balsam capaiwa, &c., can be carried to Para, a voyage of 2 months with the stream, and of 6 months against it. The river is here about 900 yards wide, but divided into several channels by islands and numerous ledges of rock. At 15 m. below is Nossa Senhora da Guia, a village containing a church and thirteen houses: 3 m. N. of this village the river is narrowed by ledges of rock to 400 yards; and 1 m. farther S. the river Isanna joins from the N.W. and W., flowing from the Tunuhi range: its outlet was 250 yards wide, and its waters black. Its upper parts are thickly inhabited by Indian tribes, against whom an expedition had recently been sent under pretence of pressing them for the service of the Brazilian navy, but in fact to send them into the interior to the mines as slaves; and such was the terror caused by it, that many of the villages were tenantless, or inhabited only by women. At 3 m. below is San Felipe, a village on the W. bank, with a church and six houses; and 6 m. farther S., on the opposite bank, the miserable hamlet of Sta. Anna, where we took shelter for the night under an open shed, while the thunder rolled heavily all around us. The villages on the banks of the Rio Negro are far more neglected than the Spanish villages on the Cassiquiare and at San Carlos: more than seven years had elapsed since a priest had visited them; and the present pastoral journey of Padre Felipe was the talk of the country. Lat. by mer. alt. $0^{\circ} 17' N.$

10th.—After $2\frac{1}{2}$ hours' paddling this morning I was surprised to find myself off the outlet of the river Guapes or Uaupes, which in all the maps we had seen was laid down S. of the equator, whereas, by our distance run, and last night's observations, it must be in $0^{\circ} 8' 30' N.$, differing fully 9 miles in lat. from its generally supposed position.

We ascended the stream, which is called Ucayari by the Indians, about 1 mile in a westerly direction, to San Joaquim de Coanne, a deserted village on the S. bank, the inhabitants of which had removed to Kaiwana, a settlement 6 days' journey up the river, where they maintained a brisk trade with the natives. Just below San Joaquim the Uaupes divides into two branches, forming a low island 5 m. long; but of the channel connecting this river with the Curicuri, as laid down in most maps, the natives know nothing. The width of the Uaupes at its mouth may be 300 yards

at this season; the current rather stronger than that of the Rio Negro, or $1\frac{1}{2}$ miles per hour; its water black. From this spot the Rio Negro assumes an E.S.E. direction, which is its general course, as far as San Thomar, a distance of nearly 250 miles.

Just below the southern point of the island the river has high banks, and is narrowed in by two ledges of rock to a width of 400 yards, but immediately expands again to its usual breadth of 1 mile, with islands near both banks, and studded with rocks.

The prospect here is very lovely: in the distance to the S.S.E. is the group of peaked mountains named Wanari Mapan; nearer, some isolated hillocks rear their heads out of the plain, while the foreground is animated by several little cottages erected on the islands and banks of the river, surrounded by plantain and banana trees, above which the graceful paripa or Pirijao-palm (*Guilielma speciosa*) raises its pinnated leaves. The river Coçobixi here joins from the south, while almost immediately opposite, on a projecting point on the eastern bank, stands the lonely chapel of Sta. Barbara, raising the peaceful emblem of Christianity, even in these sequestered wilds, above the broad river which foams and flows at its foot.

Such is the scenery at the spot in which the Rio Negro crosses the equator: more than fourteen months had elapsed since I had before traversed this parallel 500 miles farther to the E.; and although but an imaginary line, one cannot help attaching some interest to the great circle to which we are accustomed to refer our chief geographical measurements.

A low hill, about 2 miles S. of the chapel of Sta. Barbara, on the western bank, would, according to my reckoning, be exactly on the equinoctial line; and in the absence of any other name, perhaps it may be permitted to call it the Cerro do Equador.

Below this the river is impeded by rapids and falls, which follow in quick succession; and a steady hand at the helm, and a quick eye, are of the first importance: these excellent qualities we had in our old pilot Bernardo, from Xié; and we landed safely towards sunset at São Gabriel, a small stone-fort of six guns and fourteen men, on a projecting eminence on the left bank of the stream.

11th—12th.—As the weather was cloudy and lowering, we were detained here a day, in order to get an observation for latitude, a point of some importance, so near the equator. On the night of the 11th a mer. alt. of two stars gave me $0^{\circ} 7' 30''$ S. The population of São Gabriel is about 200: the chief employment of the women is in the manufacture of hammocks from the Miriti or Mauritia palm. The cords are coloured blue with indigo; pink with the roots of the mirapiranka tree; and yellow with the fruit of the mankaratice; ochre, from the orucku or

arnotto. Figures are usually worked in the hammocks; and a good workwoman can finish one in three days. They sell at Manaos and Para for about 10 or 12 milreis (about 3*l.*). The men manufacture cordage, or piazaba, of the fibres of the *Attalea funifera*.

The commandant here was in great dread of an attack from the Indians, in revenge of the barbarities committed by the slaving expedition before alluded to, and had made preparations for defence. São Gabriel, as well as all other places in the magnificent province of Rio Negro, has suffered from the devastating influence of political disturbances. Formerly flourishing villages existed where is now alone a name to be found: numerous boats were then trading between Gran Para and the Upper Rio Negro, an inland navigation of upwards of 1400 miles, almost without impediment; now hardly a vessel is to be seen.

The largest rapid in this river occurs just below the fort; and we here unloaded our canoe, and transported the baggage for about 1 mile over the Cerro Arruyabai to the lower port or Embarcadero. The fall of the stream may be about 20 feet. On our road I remarked on a ledge of granite some Indian figure-writing, of the greater interest, as it was the first we had met with on the Rio Negro. The figures were in the form of a labyrinth, and was remarkable for the depth to which it was cut in the rock; and although the footpath leads over these rocks, and thousands may have walked over it, the figure is not at all obliterated: an attempt to imitate the figure at a later period, and probably with a hammer and chisel, is nearly effaced, and shows more strongly the peculiar skill of the original workmen, whoever they might be.

We re-embarked at 8 A.M., and were carried quickly forward by a strong current, caused by the continual rapids of Cujubi, for two hours, till opposite the small settlement of Cumanau. Passing the rivers Ingwa and Curicuriari we saw a group of peaked mountains in the S., rising 2000 feet above the plain, and at sunset reached the deserted village of San Pedro, 16 miles below. Lat. by merid. alt. of α Argus $0^{\circ} 20' S$.

13*th.*—The temperature of the air this morning at daylight was 75° ; that of the water 86° Fahr. Heavy thunder was rolling towards the S., and shortly after the rain fell in torrents. I much feared the season was breaking up.

We met a family of half Indians, who had been up the Marié to procure clay for pottery; we bartered with them for some fruit called yuccu by the Spaniards, and cocui by the Portuguese, in hopes of obtaining seed to introduce the tree into the colony at Demerara. The fruit is pear shaped; the seed, or kernel, is

oblong, and upwards of 2 inches in length; the stone or endocarp is dark brown, with a broad white scar, and surrounded by a pulp of sweetish taste; the outer coat contains an acid milk. I could not discover what plant produces it. The river Marié is 200 yards wide at its outlet; I was told that by means of a tributary of the Japura, probably the Amoniu, the Indians travel from this river to the Amazons. From this point the Rio Negro winds between E.N.E. and E.S.E. in reaches of 15 miles, for a distance of 45 miles, as far as Nossa Senhora das Caldas, when it resumes its general easterly direction; its width near the village of Wanawacca, where it is comparatively free of islands, is about 2 miles; its depth varies considerably, from 10 feet to a few inches, and numerous dry sand-banks occur; the shores are flat and thickly wooded; palms are numerous; but the height of the forest trees seldom exceeds 70 feet; the majestic Mora of the rivers of Demerara is entirely wanting.

14th.—Starting early, we were by daylight off the almost deserted village of Maçarubi, and 4 miles below, at 7 o'clock, passed the junction of the river Cababuri, about 150 yards wide, which is said to have its sources in the chain of mountains 100 miles to the N., where the sarsaparilla grows. Below Carmo, a village now in ruins, on the northern bank, the river spreads to 3 miles in breadth, and affords a distant prospect towards the four isolated mountains of Jecan, which rise on the S. bank of the stream. We landed at 11 A.M., and halted the day at Sant' Antonio de Castanheiro Novo, where we were received in a very friendly manner by the commandant. This village of 100 persons is situated at the foot of a hill on the northern bank of the river; its lat. by obs. of α Argus gave me $0^{\circ} 17' 30''$ S., and its long., by my reckoning, $65^{\circ} 42'$, or 26 miles to the westward of its position in most maps; the maps also err in placing the river Maraviha to the westward, while it is in reality 16 miles to the E. of Castanheiro; the distance also to this place, from the Cababuri, is about 20 miles instead of 55 miles, as usually represented.

15th.—Passing the rivers Abuara and Inambu on the N. bank, and the mountains of Jecan on the S., the stream expands to a width of from 3 to 4 miles, with numerous islands; the current was here 1.7 miles an hour. At the mouth of the Maraviha is an island 4 miles long, which causes the river to flow out by two channels, of which the western is the larger: this stream offers a high road to the sarsaparilla mountains, said to be 120 miles to the N., but is not navigable during the dry season. Threading our way along the northern shore, through an intricate labyrinth of islands, we reached Sta. Isabel, an almost deserted village, with a fine church on the northern, and not on the southern bank, as

often placed in our maps. Nearly opposite the river Uenivixi, Aiuna and Urubaxi offer communication with the Japura to the S., where also much sarsaparilla is collected.

16th and 17th.—The first news at dawn of day was that our pilot had escaped, not wishing to go any further from home with us; as no other was to be procured, I was obliged to trust to the coxswain of my boat. Continuing along the northern shore, at 10 miles we passed the river Daraha, flowing from the N., and about as wide as the Marawiha: the Rio Negro is here studded with rocks of granite, belonging to the same group as those at Sta. Anna and São Gabriel, 150 miles distant, so that some idea may be formed of its extent; none of them have the black crust of oxide of manganese, as I had observed so generally in the rivers of British Guayana. As we advance to the eastward the river widens, and now averages from 5 to 6 miles, and when we enter a long reach, we have an almost sea horizon; it occasionally extends even to 10 miles in width, at least so I judged it to-day, when I saw it clear of islands.

18th and 19th.—In consequence of the desertion of our pilot, we had great difficulty in discovering the mouth of the Padaviri, and indeed entered two other streams in search of it, till, on the morning of the 19th, we met an *igaritea*, or large canoe, coming up under sail, from which we learnt that we were 6 miles below its mouth. We accordingly profited by the fair wind, with a tent-cloth as a mainsail, a hammock as a jib, and the British ensign waving at the stern, turned the head of our canoe up the stream, and in less than an hour reached the entrance of the Padaviri, which is so hid by islands that it is difficult to discover; the whiter colour of the water, which forms a strong contrast, would be the only guide, as a large island turns its outlet to the E. Within, the stream narrows to 150 yards as we ascended to the settlement, where is a large rope factory for the Para government, but not at this time at work for want of Indians. This establishment is situated about 9 miles up the Padaviri, on its E. bank, and had now about fifty persons dwelling there.

We had hoped to find here Mr. Vieth and Mr. Le Breton, two of our expedition, but they had gone on towards the Rio Branco.

20th.—It was so hazy this morning on leaving the Padaviri, that we could scarcely see 20 yards before us; the natives call this haze *fumaça*, and declare it proceeds from the burning of the savannahs, distant some hundreds of miles, but this would seem improbable. It, however, raised the temperature of the atmosphere to 81°, while the water continued at 83°. A strong E. wind usually set in in the morning, reached its greatest strength about noon, and then died away, and by 3 P.M. the river was as

smooth again as if it had never been agitated by waves, which in the morning made it more resemble a sea-coast than an inland stream, upwards of 1000 miles distant from the ocean.

21st.—In order to reach Bararoa, we were here obliged to cross the Rio Negro by a winding course amidst the numerous islands, and reached Lamalonga, on the S. bank, at 3 this morning. I estimated the width of the stream at 10 miles.

Bararoa, formerly San Thomar, 9 miles lower down, is situated on an eminence on the S. bank of the river; steps, or rather ladders, lead up to the houses from the water. Here is a church, and the ruins of twenty houses; the only inhabitants we found were an old negro woman, and an Indian girl: the leaves clambering over the roof, and the high bushes and grass before the door, gave the idea of utter desolation.

I observed near Bararoa a species of palm, which I had not previously noticed, growing in clusters of from forty to fifty; the stem is slender, set with prickles, and rises to a height of 40 feet, bearing a crown of fan-shaped leaves; the fruit tessellated, and with one seed, removed all doubts of its being a mauritia (*Mauritia aculeata*); it is called in the *lingua geral*, or common language, maranna, and distinguished for its gracefulness and the large clusters in which it grows. It appears to delight in the soil along the river's banks, and the current tears away whole clusters, which are found with their heads immersed, and their roots high above the ground on which they grew. A second species, which is frequently found in the neighbourhood of the former, has pinnated fronds or leaves, and its stem is surrounded by fibres, the fruit smooth, with one seed, and compressed. Excepting these two species of palm, the foliage was dismal, the long drought that had prevailed having deprived the trees of their green colour, and indeed of their leaves. In whatever direction we turned, we saw fire and smoke, and by night had the splendid spectacle of seeing whole islands in a blaze, and numerous other fires in the distance. It is remarkable how the fire reaches small islands separated miles from each other, unless it arise from spontaneous combustion. The heat and drought had been equally fatal to fish, which died in great numbers in the dried up pools, and tainted the atmosphere around. That strange species of turtle, the mata-mata, or *Chelys fimbriata* of naturalists, abounded in these pools, and might have been collected in hundreds were it not for its disagreeable odour; it is, however, eaten by many, and declared equal to the large river turtle.

22nd.—The granite blocks and ledges so frequent in the Upper Rio Negro have quite vanished, and indurated clay has taken their place. We passed the large lagoon Warira or Airaõ on the S. shore, which receives a river of the same name, and soon

afterwards arrived at about thirty cottages, extending for upwards of a mile along shore, and around which the owner plants his coffee &c.; they are called *sítios*, or estates; there are but few negro slaves here; indeed along the whole of the Rio Negro I do not think there are 600: an equal number of Indians are kept in slavery and used as domestics, labourers, &c. I succeeded in procuring here a small quantity of dried fish of the pirarucu of the Brazilians, or warapaima of the Macusis (*Sudis gigas*); its flesh, dried and salted, forms one of the chief articles of trade of the rivers Negro and Solimoes. This large fish, which reaches a length of 12 feet, is scarcely known to naturalists; its scales are of a considerable size and of a beautiful crimson, whence its name of pirarucu, or red-fish, in the *lingua geral*. A great deal of this fish dried is exported to Para, and when the river is low a handsome profit is made; it here costs from 2 to 3 milreis, or about 12s., the arroba of 32 lbs.; this fish is also plentiful in the Rupununi, and one is surprised that the colonists do not turn it to account and carry it for sale to Demerara; the pirarucu is usually taken by a number of small boats armed with harpoons, which drive it among the shallows, where it falls an easy prey. Moreira or Cabuquena, in the vicinity of which we encamped that night, is in $0^{\circ} 34' 54''$ S.; it has a church and twenty houses, but it appeared abandoned at present, its former inhabitants having retired to their *sítios*.

23rd.—The variation of the compass by an amplitude at sunrise this morning was 5° E., and such nearly has been the result of all my observations throughout Guayana. From the meridian of $63^{\circ} 20'$ W. the river assumes a more southerly course, and for the next 150 miles, as far as the mouth of the Rio Branco, its general direction is S.E. Continuing along the southern shore we passed the river Quihiuni and the lagoon Gunimaru, and halted at sunset on an island.

24th.—We reached Barcellos, now called Mariua, at an early hour; its aspect is not uninteresting. The church, larger than any we had hitherto seen, is built on elevated ground and surrounded by several good-looking houses; some schooners and sloops, which were at anchor before the town, gave an animation to the picture which is so much wanting in these vast rivers. At the commencement of the present century Barcellos had from 10,000 to 12,000 inhabitants, and was the capital of the Capitania do Rio Negro, but since the seat of government has been removed to Manaos or Barra, its downfall has been rapid. At present scarcely twenty houses are inhabited; as the greater part of the proprietors live on their *sítios* or estates, and cultivate the ground.

After a separation of six months we here joined Messrs. Vieth and Le Breton, who had been engaged in making collections in

geology and botany. The difficulties and delays they had experienced from the authorities was a proof to me that had I not brought my own boat's crew of Warraus, and of Spanish Indians of the Guinau and Maiongkong tribes, all together twelve in number, months might have elapsed before reaching Barcellos; whereas we had only been 21 days actually *en route* from Esmeralda to this place, being a distance of 575 miles, including windings, or on an average upwards of 27 miles a day; nor should we have made so much progress had we selected the Mavaca and Padauri for our route. It was a subject of much gratification to me to visit the principal families of the place, and especially the Senhores Rodolfo, Pini, and Coito, to thank them for the kindness and attention which they had shown to our party during its stay at this place.

Lying prostrate on the river's bank at Barcellos, are two blocks of coarse marble, which were intended to be placed as boundary marks on the frontiers of the Brazilian, the Spanish, and the Dutch possessions; but now they have little prospect of reaching their destination.

The river opposite Barcellos is nearly 15 miles across, but divided by several islands into as many channels; the banks preserve their alluvial character, with the exception of one large transported block of coarse-grained granite, which by some accident has found its way hither. The river was at its lowest level while we were here, lower indeed than it had been in the recollection of Senhor Coito, who had been for upwards of 30 years a resident. The rising of the river usually begins in the early part of March, and reaches its highest level in June; being a rise of from 15 to 20 feet, but sometimes as much as 25 feet. It falls gradually, and is, on an average, level in September.

The weather was unfavourable during the three days of our stay, and I could get no observations.

27th—29th.—Having completed our provisions for a long voyage, we started in the afternoon, and continued along the southern shore of the river within the islets with which it is lined: the river had already risen 10 inches, and was rising rapidly; so much so, that many of the small islands were inundated and the sandbanks covered. A few of them yet visible were crowded with cormorants, the razor-beaked gull, and rose-coloured spoonbills. Towards noon of the 29th we passed Aracari, Carvoeiro, or San Miguel de Rio Branco, which in spite of its high-sounding name, contains only a church and twenty houses, pleasantly situated on the south side of the river, but partly fronting a small inlet. Immediately opposite on the north shore is the outlet of the river Serevini, which being connected by a channel with the Rio Branco, is usually considered a western mouth of that

river, and is known by the name of the Boca Amayau. The Rio Negro is here contracted from 15 to 3 miles in width; as we continued along the southern shore at 9 miles below Aracari, we again met with rocks in the river, the first time since leaving Isabel, a distance of nearly 250 miles. A few miles beyond, the waters of the Rio Negro assumed a whitish tint, a sure sign that we were opposite the lower or eastern mouth of the Rio Branco or White River. We halted this night on an island covered with a species of *Eugenia*, with the fruit the size of a large cherry, and pleasant to the taste.* We watched in vain for observations, nor did we lie down till our last hope, the Centauri, had passed the meridian. We soon after started and reached the Ilha de Pedra at sunrise.

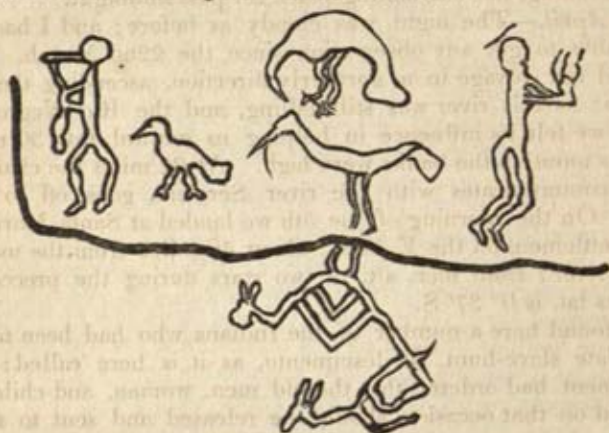
30th.—The Indian picture writings which make this small island remarkable, are on its S. side, and sculptured in hard granite blocks, and although the atmosphere has not been without its influence, they are still several lines deep: they are numerous, and consist of the representations of men, birds, and animals. On one large boulder thirteen figures representing men, are arranged in a line as if dancing: the most remarkable figures, however, are the representation of two vessels under sail; the smaller a two-masted vessel, the larger not unlike a galleon, as represented in the subjoined woodcut.



[Indian "picture-writing" at the Ilha de Pedra.]

* The Flora of the Rio Negro is otherwise distinguished by *Latreillea glabrata* (sp. n. B.) *Wedelia hispida*, *Coutoubea ramosa*, *Herpestes chamædrifolia*, *Hyptis spicata*, *Æschynomene ciliata*, *Æ. interrupta*, (sp. n.) *Drepanocarpus inundatus*, *Triptolemea riparia*, *Diplotropis nitida* (sp. n.) *Cassia moschata*, *C. Trinitatis*, *C. obtusifolia*, *Swarzia grandifolia*, *S. alterna* *Heterostemon mimosoides*, *Outea acaciæfolia* (sp. n.) *O. multijuga*, *Fouapa*, *Peltogyne paniculata* (sp. n.) *Schnella splendens* (sp. n.) *Copaifera*, *Schranckia leptocarpa*, *S. brachycarpa* (sp. n.) *Mimosa micracantha* (sp. n.) *M. acacioides* (sp. n.) *M. Schomburgkii* (sp. n.) *Entada polyphylla* (sp. n.) *E. myriadenia*, *Parkia*, *Ilex Macucu*, *Erythroxylon Coca*, &c.

There remains, therefore, little doubt that these pictures have been made at a later period, and after the discovery of the Amazons, when the vessels of the Conquistadores already floated on the mightiest stream of the world. It is not improbable that the group of figures relate to an event of great rejoicing; perhaps the first arrival of Europeans on the Amazons.



[Indian "picture-writing" at the Ilha de Pedra.]

The Indians of the present day in the vicinity of Pedrero admit the antiquity of these figures, and say that they were engraved by means of constant friction with quartz pebbles. Such may have been the case; but our trial proved fruitless; as indeed do our attempts to produce fire from two sticks, though it is done with ease by the Indians: unwearied patience may have accomplished it. These figures, it should be remarked, are not so deeply cut as those on the Corentyn, or at Waraputa on the Essequibo.

Pedrero, the former Moura, and Itarendaua, or "the place of rocks" of the natives, and by which latter name it is now called in all official documents, lies about 10 miles E. by S. from the Ilha de Pedra, and on the S. bank of the river.

It became an agreeable duty to me to render to Capt. Bemfico and Senhor Brandao my thanks for the kind attention which they had shown to Mr. Vieth and Mr. Le Breton. We were received with much hospitality, and remained 3 days at Pedrero, which, as it was during Easter, had a lively appearance. Being in the act of building a new church, mass was held in the house adjoining our residence, which served afterwards as a ball-room. The greatest curiosity in Pedrero is an Albino, an Indian of the Wainampu tribe. He is a man of about 40 years of age, and I have been told that his two children are likewise Albinos.

About 10 years ago, Moura or Pedrero was a flourishing place,

with about 100 houses and 1000 inhabitants; the present number of inhabitants does not amount to more than 200.

On our return-voyage we found the river much increased, and we had to stem a strong current: we again passed the Ilha de Pedra, but did not reach the entrance of the Rio Branco till late in the evening, nor our halting-place till past midnight.

3rd April.—The night was cloudy as before; and I had not been able to get any observation since the 22nd March. We pursued our voyage in a northerly direction, ascending the Rio Branco: as this river was still falling, and the Rio Negro fast rising, we felt its influence in helping us onward full 30 miles from its mouth: the banks were high. At 22 miles the channel, which communicates with the river Serevini, goes off to the S.W. On the morning of the 5th we landed at Santa Maria, a small settlement on the E. bank, about 46 miles from the mouth of the river: from mer. alt. of two stars during the preceding night its lat. is $0^{\circ} 37' S$.

We found here a number of the Indians who had been taken in the late slave-hunt, or descimento, as it is here called: the government had ordered that the old men, women, and children captured on that occasion should be released and sent to their homes. As soon as those at Santa Maria heard that my arrival was expected they declared they would wait for me. They consisted of two old men, five women, and two children, who were left to themselves, and almost starving: our canoes were almost overloaded; however, I made place for three of them in my own, and bought a small craft for the remainder. Another party of seven were to follow on the next day.

6th—8th.—The river offered no interesting feature, and the shallows continued: the banks were high, and we were compelled to pitch our tents on the sand-banks; not particularly agreeable, especially as we were exposed to thunder-storms, which usually came on at midnight, and wetted them through. Towards sunset, on the 8th, we landed at N^a S^a do Carmo, a small village 50 miles higher up on the right bank, famed for its orange trees: the population appeared numerous, perhaps 500; and among them were many Wapisiana and Atoroya Indians, who had been brought here on the occasion of some former slave-hunt, and afterwards liberated. The night proved clear: and the lat., by means of four mer. alts., was $0^{\circ} 16' 30'' N$.: we then found that we had crossed the equator on the preceding day.

9th, 10th.—We were last night exposed to one of the most violent thunder-storms I had ever experienced while we encamped at the mouth of the river Wariacura. We left Carmo at 2 A.M., and paddled till $\frac{1}{2}$ past 6 in the evening. At 11 miles we passed the outlet of the Catrimani, on the W. bank: it was

then almost choked up with sand, and dwindled to a small rill, scarcely 4 yards wide, a circumstance unheard of before. Its width, when the river is full, is 150 yards.

Some years ago a party from Carmo ascended the river Catri-mani and reached the Sarsaparilla country. At 60 miles from its mouth is a settlement of Pauishana Indians, who trade on one side with those at the source of the river, and on the other hand with the Indians of the Mocajahi and the Wapisianas at the Rio Branco. A path is said to lead in five days from the Catri-mani to the Mocajahi or Kaiawana. The bed of the Catri-mani is much impeded by rocks and cataracts during its passage through the mountains, and only navigable for small canoes during the rainy season. Its last reach on joining the Rio Branco is E.S.E. A little above its junction, and on the same side, the small stream Inivini falls into the Rio Branco. Lat. of camp at Wariacura $0^{\circ} 34' 20''$ N.

11th—17th.—At 26 miles beyond, we passed the mouth of the river Uanavau, Anava or Wanawau, which falls into Rio Branco from the N.E. and E., and is said to have its sources near those of the Yurawauri, a tributary of Essequibo; at its upper part it is inhabited by Taruma Indians; I estimated its width at entrance at upwards of 150 yards.

In the parallel of $1^{\circ} 45'$ N. granite blocks re-appear about 10 miles S. of the Yawuttan mountains, or Serra da Cachoeirinha of the Portuguese, which rise to the height of 300 feet above the plain, chiefly on the river's eastern bank; this tract of granite extends across and forms the well-known falls on the Rio Branco; the whole extent of these falls and rapids is 7 miles, and at the largest, the Caruwanna, it is necessary to unload the canoes. I estimated the perpendicular fall of the whole at 60 feet in the 7 miles; the largest is scarcely 10 feet perpendicular, and is much less formidable than the Etably and Taminet falls on the Essequibo.

18th, 19th.—This day we had our first view of the Serra Grande, or Carumá mountains, bearing N.N.E., and gladly recognised our old acquaintance. At sunset we landed at the Sitio Angelini, and, as the night proved clear, the first since the 13th, we found its latitude to be $2^{\circ} 18' 20''$ N. The report of our having been killed on the Orinoco had reached this place; and although strangers our arrival seemed to cause general joy. In the afternoon of the 19th we passed the mouth of the river Mocajahi, the Kaiawanna of the Indians, which comes from the W. It presents the remarkable feature of joining its recipient against the stream of the latter, which here runs S. 17° W., while that of the former N. 49° E., or only three points from being directly opposed; nor does it appear to have changed its course, as

the trees on both its banks seem of equal age. This river is inhabited by Pauishana and Wayamara Indians; Murumuru, the first settlement of the former, is said to be 14 days' journey distant from its mouth; but as the river is very winding, a much shorter path leads from the Wapisiana settlement at the Wauwau to the Pauishanas; thus the two tribes keep up a constant intercourse. From all I can learn, I am of opinion that the Kaiawanna has its sources at the great division of waters between the Orinoco, the Parima Proper, the Catrimani, and the Padauri, or at the southern angle of that group of sandstone mountains which branches off from the Maritani. A path of 3 days' journey is said to lead from the Wayamara settlement at the Parima, in $3^{\circ} 15' N.$ to those at the Mocajahi, where the latter river is said to be 40 yards wide. This would point to a source farther W. than laid down in all recent maps. Indeed, from all I heard when near the head waters of the Orinoco, the Paraba, which has its sources in the vicinity of Mount Tematiban, and by which the Indians of these regions descend to the Rio Branco, is the Mocajahi of Portuguese maps—the Kaiawanna of the Wapisianas.

We travelled this day until half-past one in the morning, and halted at the foot of the Serra Grande or Carumá.

20th—22nd.—The wind blew in such heavy gusts from the northward that we made little progress; but by perseverance, on the afternoon of the 22nd, we again reached Fort São Joaquim.

Seven months and two days had elapsed since our departure from the Fort, during which period we had made a circuit of about 2200 miles, a tract comprising the sources of the northern tributaries of the Takutu, the waters of the Mazaruni, the sources of the Caroni, the northern tributaries of the river Parima, the sources of the Párawa, the Parima Proper, the Merewari, the Orinoco, the Cassiquiare, and the northern tributaries of the Rio Negro to the confluence of the Rio Branco, which river we had now ascended for 300 miles, including its windings, in twenty days, and eventually reached our starting point at Fort São Joaquim.

We were welcomed by the commandant, and our old quarters given to us; but I was too anxious to push forward to Pirara to remain long, and on the afternoon of the 27th set out in a very light corial, and ascending the Takutu with great difficulty, owing to the want of water—as this stream, which in the preceding July we had found 690 yards wide, and 11 feet deep, had dwindled at its mouth to a width of 10 yards of running water, and 11 inches in depth—we reached Pirara on the evening of the 1st May. We found here a Brazilian detachment in possession, who ultimately drove away the zealous missionary, the Rev. Mr. Youd, and dispersed his flock. What right the Brazilian government had thus to act need not be discussed here; my duty is only

to report the fact, that the former chapel was converted into barracks, and the building where the first seeds of Christianity had been sown among the benighted Indians, became the theatre of obscene language and nightly revels.

After three months' drought, the first rain fell at Pirara on the 3rd May, and with it commenced the great change of weather; the rivers began to swell, and by the middle of May the savannah represented a lake, out of which Pirara, being 80 feet above the level of lake Amucu, rose like an island. Towards the end of May, our heavy canoes, with our collections, arrived from Fort São Joaquim, and were launched on the Quatata, which communicates with the Rupununi; they soon floated on the latter river, and, carried rapidly forward by a strong current, we reached its junction with the Essequibo on the 11th June.

On the 13th we landed at the Comuti, or Taquiara rocks, which again I climbed, and found the height of these masses of granite by measurement to be 160 feet, thus fully confirming my estimate of them on my former ascent of the river.

The Essequibo was full to overflowing, the falls no longer impeded our progress; in five days we descended the distance it had taken us twenty-three days to ascend. On the morning of the 17th June, we approached the Protestant mission at Bartika Point, and the hoisting of flags and firing of guns gave us proof of the kind interest the inhabitants took in our safe return. By a strange coincidence I was on this occasion, as I had been on my return from my first expedition in 1836, received on landing by the Bishop of Barbadoes, who was now, as then, on a visit of inspection to the mission, and it was with sincere regret that I had to communicate the sad news of the dispersion of the mission at Pirara, in which this worthy and much-respected prelate had not only taken the liveliest interest, but its foundation may be, in some measure, attributed to his instrumentality.

Two-and-twenty months had elapsed since I had passed this spot, on my ascent of the Essequibo, and bade adieu to civilised life and its comforts; during this period I had examined the Essequibo to its sources, made the circuit of upwards of 3000 miles chiefly by water, which has been detailed in the foregoing pages, and was now, by the blessing of Providence, returning safe to George Town, Demerara, which I reached on the 20th June, 1839.

Such is the internal navigation of one of the most luxuriant colonies in Her Majesty's dominions, that I cannot conclude this report without directing attention to the facility for water com-

munication offered by the rivers which intersect this district of South America. By traversing the portage between the Quatata and the lake Amucu (in the rainy season about 800 yards), and by a canal of 3 miles' length between the Guapore, a branch of the Marmore and the Madeira, and the Rio Aquapehi, a branch of the Taura and the Paraguay, an inland navigation would be opened between Demerara and Buenos Ayres, over an extent of 42° of lat. The Napo, a tributary of the Solimoes, offers communications with Quito; the Ucayali with Cuzco; the Huallaga with Lima and the Pacific Ocean. By the Rio Negro, the Orinoco, the Cassiquiare, and its tributary the Meta, there is uninterrupted navigation to New Grenada, and within 8 miles of Santa Fé de Bogota. If British Guayana did not possess the fertility which is such a distinguishing feature, this water communication alone would render it of vast importance; but blessed as it is with abundant fruitfulness, this extensive inland navigation heightens its value as a British colony; and if emigration, sufficient to make its resources available, were properly directed thither, the port of Demerara would rival any in the vast continent of South America.

VI.—*Narrative of the Progress of Arctic Discovery on the Northern Shore of America, in the Summer of 1839.* By MESSRS. PETER W. DEASE and THOMAS SIMPSON. Communicated by Sir J. H. PELLY, Bart., Governor of the Hudson's Bay Company.

Fort Simpson, Oct. 16, 1839.

HON. SIRS,—We have the honour to report the completion of all the primary objects of the expedition—the entire fulfilment of Governor Simpson's original instructions, under which it has been our good fortune to act, and something more; though, as we plainly told your Honours last winter, it was quite out of the question to think of reaching the strait of the Fury and Hecla from the Coppermine River.

On the 22nd of June we descended that impetuous stream to the Bloody Fall, where we remained until the 28th. This interval was employed by Mr. Simpson in exploring Richardson's River, discovered in 1838, which discharges itself, as we then supposed, into the bottom of Back's Inlet, in latitude $67^{\circ} 54' N.$, longitude $115^{\circ} 56' W.$ A party of about thirty Esquimaux were encamped there, all of whom fled precipitately to the hills except one family, whose tent was placed on an island in the stream. With these last a communication was opened, through our interpreter Ooligbuck, but the circle of their little lives being confined to Berens' Isles and the borders of Richardson's River, they had no information to impart of any value.

On the 3rd of July the first slight opening occurred in the sea ice, of which we took instant advantage; but our first week's journey did not exceed 20 miles, and it was the 18th, after sad work, before we could attain Cape Barrow. From its rocky heights we beheld, with equal surprise and delight, the wide extent of Coronation Gulf partially open; whereas, long after the same date in 1838, the whole party might have crossed it on foot. At midnight on the 20th we landed at Cape Franklin, just one month earlier than Mr. Simpson's arrival there on his pedestrian journey of the year before. A violent easterly gale arrested our progress for the next four days; and on the 27th and 28th we encountered great peril in doubling Cape Alexander amidst very heavy driving ice.

From Cape Alexander, situate in lat. $68^{\circ} 56' N.$, long. $106^{\circ} 40' W.$, to another remarkable point in lat. $68^{\circ} 33' N.$, long. $93^{\circ} 10' W.$, the Arctic coast may be comprised in one spacious bay, stretching as far south as lat. $67^{\circ} 40'$ before it turns off abruptly northward to the last-mentioned position. This vast sweep, of which but an inconsiderable portion was seen by Mr. Simpson last year, is indented by an endless succession of minor

bays, separated from one another by long narrow projecting points of land, enclosing an incalculable number of islands.

From this description it will be evident that our route was an extremely intricate one, and the duties of the survey most harassing; but, whilst perplexed beyond measure in finding our way through these labyrinths, we derived great advantage from the protection afforded by the islands from the crushing force of the seaward ice; and the weather was generally clear. In fact, the most serious detention caused by ice on this part of the voyage was from the 1st to the 5th of August, on a point that jutted out beyond the insular chain. White Bear Point, as it was called, lies in lat. $68^{\circ} 7' N.$, long. $103^{\circ} 37' W.$, variation $54^{\circ} 45' E.$ These bays and masses of islands present a distinct succession of geological features, which can be best illustrated by our series of specimens of the rocks that compose this wild and barren coast. Vestiges of Esquimaux, mostly old, were met with wherever we landed. They appear to subsist in single families, or very small parties, and to travel inland for the deer-hunt in the month of June, not returning to their sealing islands till the ice sets fast, in October. A river, twice the size of the Coppermine, which falls into the sea in lat. $68^{\circ} 2' N.$, long. $104^{\circ} 15' W.$, is much resorted to by reindeer and musk-oxen in the summer season.

Finding the coast, as already remarked, trending northerly from the bottom of the great bay, we expected nothing less than to be carried round Cape Felix of Captain James Ross, contrary to the conjecture hazarded by Mr. Simpson in his narrative of last year's journey. On the evening of the 10th of August, however, (at the point already given,) we suddenly opened a strait running in to the southward of east, where the rapid rush of the tide scarcely left a doubt of the existence of an open sea leading to the mouth of Back's Great Fish River. This strait is 10 miles wide at either extremity, but contracts to 3 miles in the centre. Even that narrow channel is much encroached upon by high shingle islands, but there is deep water in the middle throughout.

The 12th of August was signalised by the most terrific thunder storm we have ever witnessed in these regions. Next day it blew roughly from the westward, with a very dense cold fog; but we ran rapidly south-east, passed Point Richardson and Point Ogle of Sir George Back, and continued on till the darkness of night and the increasing gale drove us ashore beyond Point Pechell. The storm shifted to the north-east, and lasted till the 16th, when we directed our course, with flags flying, to the Montreal Island. On its northern side our people, guided by Mackay, soon found a deposit made among the rocks by some of Sir George Back's party, but, as Mackay seemed to think, without that officer's knowledge. It contained two bags of pemican and a

quantity of cocoa and chocolate, all perfectly rotten, besides an old tin vasculum and two or three other trifling articles, of which we took possession as memorials of our having breakfasted on the identical spot where the tent of our gallant, though less successful, precursor stood on his return from Point Ogle to the Great Fish River, that very day five years before.

The arduous duty we had, in 1836, undertaken to perform was thus fully accomplished; and the length and difficulty of the route back to the Coppermine would have amply justified our immediate return. We had all suffered more or less from the want of fuel and the deprivation of warm food, and the prospects grew more cheerless as the cold fall weather stole on apace; but, having already ascertained the separation of Boothia from the American continent, on the western side of the Great Fish River, we determined not to desist till we had settled its relation thereto on the eastern side also. A fog which had come on dispersed towards evening, and unfolded a full view of the picturesque shores of the estuary. Far to the southward Victoria headland stood forth so clearly defined that we instantly recognised it by Sir George Back's exquisite drawing. Cape Beaufort we almost seemed to touch; and with the telescope we were able to discern a continuous line of high land as far round as north-east, about two points more northerly than Cape Hay, the extreme eastern point seen by Sir George Back.

The traverse to the farthest visible land occupied six hours' unremitting labour at the oar; and the sun was rising on the 17th when we scaled the bluff and singularly shaped rocky cape to which our course had been directed. It stands in lat. $68^{\circ} 4' N.$, long. $94^{\circ} 35' W.$ The azimuth compass, by Jones, settled exactly in the true meridian, and agreed with two others, by the same maker, placed on the ground. From our proximity to the magnetic pole, the compass had latterly been of little or no use; but this was of the less consequence as the astronomical observations were very frequent. The dip of the needle, which at Thunder Cove (12th of August) was $89^{\circ} 29' 35''$, had here decreased to $89^{\circ} 16' 40'' N.$ This bold promontory, where we lay wind-bound till the 19th, was named Cape Britannia, in remembrance of our glorious country. On the beetling rock that sheltered our encampment from the sea, and forms the most conspicuous object on all this part of the coast, we erected a conical pile of ponderous stones, 14 feet high, that, if not pulled down by the natives, may defy the rage of a thousand storms. In it was placed a sealed bottle, containing a sketch of our proceedings; and possession was taken of our extensive discoveries in the name of VICTORIA THE FIRST, amidst the firing of guns and the enthusiastic cheers of the whole party.

On the 19th the gale shifted from N.E. to E.S.E.; and after crossing a fine bay, due E., with no small toil and danger, the coast bent away N.E., which enabled us to effect a run of 40 miles. Next day the wind resumed its former direction, and after pulling against it all the morning among the shoals and breakers, and gaining only 3 miles, were obliged to take refuge in the mouth of a small river.

From a limestone ridge, about a league inland, we obtained a view of some very remote blue land in the N.E. quarter, in all probability one of the southern promontories of Boothia. Two considerable islands lay far in the offing, and others, high and distant, stretched from E. to E.N.E.

Our view of the low main shore was confined to 5 miles in an easterly direction, after which it appeared to turn off greatly to the right. We could, therefore, scarcely doubt our having arrived at that large gulf uniformly described by the Esquimaux as containing many islands, and with numerous indentations stretching down to the southward till it approaches within 40 miles of Repulse and Wager Bays. The exploration of such a gulf, which was the main object of the Terror's ill-starred voyage, would necessarily demand the whole time and energies of another expedition, having a starting or retreating point much nearer to the scene of operations than Great Bear Lake; and it was quite evident to us that any further foolhardy perseverance could only lead to the loss of the great object already attained, together with that of the whole party. We must here be allowed to express our admiration of Sir John Ross's extraordinary escape from this neighbourhood, after the protracted endurance of our ships, unparalleled in arctic story. The mouth of the stream which bounded the last career of our admirable little boats, and received their names, lies in lat. $68^{\circ} 28' N.$, long. $93^{\circ} 7' W.$; variation of the compass $16^{\circ} 20' W.$ The strong wind that had forbidden our advance gave wings to our retreat. The same night, the 20th of August, we landed once more at Cape Britannia, and next morning we crossed direct to Point Pechell, with a heavy sea. On the 22nd we explored a long narrow bay on the west side of Point Ogle, which extends to the 68th parallel of latitude. The north wind blew roughly, with sharp frost, and next day we got no farther than Point Richardson. Thence we crossed over; on the 24th, to what had from the continent appeared like two islands, but which we rightly conjectured to form part of the southern shore of Boothia; or, to speak with greater precision, of that land on which stands Cape Felix of Captain James Ross. This shore we had the satisfaction of tracing for about 60 miles, till it turned up to the north, in lat. $68^{\circ} 41' N.$, long. $98^{\circ} 22' W.$ Only 57 miles from Ross's Pillar the dip of

the needle was $89^{\circ} 29'$ N.; the magnetic pole bearing N.N.E., distant 90 miles: the variation, as shown by both the azimuth compass and the horizontal bar needle was 45° E. The objects seen on this coast are easily enumerated—a low uninteresting limestone tract, abounding nevertheless in reindeer, musk-oxen, and old native encampments. To the westward a good deal of ice appeared; and vast numbers of snow-geese passed high overhead, in long triangular flights, bound for milder skies.

Whilst engaged in taking observations our men constructed another durable memorial of our discoveries, which was saluted in the usual manner. Then, recrossing the strait on the 25th, we resumed for some time our outward route, only keeping more along the seaward verge of the islands, so as to shape a straighter course.

The weather, from being threatening and unsettled, soon became unequivocally severe. On the 29th of August a snow-storm began that lasted for seven days, during four days of which we were fixed to a single spot by the violence of the N.W. gales, while the frost was so keen that the pools among the rocks on which we lay became solid enough to bear a man. A more moderate interval succeeded this fierce outbreak. Quitting the continent again, at the large river already mentioned, we struck N.N.W., for an extensive island 22 miles off, which we coasted N.W. for 20 miles; and, shortly before sunset on the 6th of September, stood out from thence due N. for the nearest point of Victoria Land, which proved equally distant. We have never seen anything more brilliant than the phosphoric gleaming of the waves when darkness set in; the boats seemed to cleave a flood of molten silver, and the spray, dashed from their bows before the fresh breeze, fell back like showers of diamonds into the deep. It was a cold night; and when we at last made the land, cliffs, faced with eternal ice, obliged us to run on for a couple of leagues before we could take the shore with safety. The coast of Victoria Land, which we explored for upwards of 150 miles, is incomparably the boldest we have met with in these seas. Often, near the shore, no bottom could be found with 35 fathoms of line; and the cerulean blue colour of the water everywhere indicated a profound depth. There are several noble bays, the largest of which, N.W. of Cape Alexander, is 20 miles wide, and equally deep, backed by snow-clad mountains. It attains to $69^{\circ} 40'$ N., the highest latitude of this voyage. At length we reached the extreme point seen by Mr. Simpson, from Cape Franklin, in 1838, where the coast of this large country begins again to trend northward of west; Cape Barrow being by computation S.S.W. distant 50 miles. On the 10th of September we crossed this magnificent strait with a strong E.S.E. or side wind and a rough

sea, in which our gallant boats, old and worn out as they were, acquitted themselves beyond our most sanguine hopes. Our return from Cape Barrow was miserably retarded by furious N.W. winds and severe stress of weather. Winter permanently set in on the 15th of September; and next day, to the undisguised joy of the whole party, we re-entered the Coppermine River, after by far the longest voyage ever performed in boats on the Polar Sea. Leaving one of our little craft, together with the remains of the pemican (which through age and long exposure was become quite mouldy), and various other articles, as a prize to the first Esquimaux who may visit the Bloody Fall, we ascended the river with our double crew in four days, abandoned our tents and everything but absolute necessities; crossed the barren grounds up to the knees in snow, having unluckily left our snow-shoes on the coast, and safely reached Fort Confidence at dusk on the 24th. The fisheries had failed sooner than ever; and we had good reason to congratulate ourselves on not being doomed to pass a third winter within the Arctic Circle.

After settling with the Indians, liberally rewarding the most deserving, and supplying all with ammunition gratuitously, we took our departure on the evening of the 26th, in two inland batteaux; one belonging to the expedition, the other came from Fort Simpson sixteen days before our arrival.

Our passage of Great Bear Lake was most boisterous and inclement in crossing the body of the lake and other considerable traverses; our boats, with everything in them, and even the very clothes on our backs, became converted into shapeless masses and concretions of ice. It was high time for us to escape from Great Bear Lake, for the temperature, which was at 4° below zero when we landed at the head of the river on the evening of the 4th of October, fell 10° lower in the course of the night; and next day we descended the rapid stream in the very midst of the driving ice. On entering the Mackenzie we experienced a temporary mitigation of this excessive cold; but we should most assuredly have stuck fast above Fort Norman had not the northern gales again rose in their strength, and while they shattered and dispersed the rapidly forming ice, enabled us to stem the current under close-reefed sails. At noon on the 14th of October, after forcing our way, with no small risk, through the torrent of ice forced out by the rivers of the mountains, we reached this place, and were cordially welcomed by our valuable friend chief-trader M'Pherson, who had for some time given up all hopes of our arrival.

Most of our people are still afflicted with acute pains and swellings in the limbs, caused by cold and exposure; and we are

assured by Mr. M'Pherson that he has never known or heard of so early or vigorous commencement of winter in M'Kenzie's River: on the other hand, so fine a spring as that of 1839 seldom visits these frozen regions; and to this favouring circumstance, under Providence, ought our signal success be partly ascribed.

Oct. 30.—The state of the ice at length enables us to despatch couriers to Slave Lake. In the mean time Governor Simpson's highly valued letter of the 17th of June, which unfortunately missed us in our way hither, has cast up overland. We rejoice in having anticipated the Russian expedition, and secured to our country and the company the indisputable honour of discovering the north-west passage, which has been an object of search to all maritime nations for three centuries. When our expedition was planned at Norway House, in 1836, it was confidently expected that Sir George Back would have achieved the survey of the Gulf of Boothia with the Terror's boats, and that our meeting at the mouth of the Great Fish River would have left no blank in the geography of northern America. That officer's failure, the exhaustion of our men and means, and the necessity of a new wintering ground, render a fresh expedition indispensable for the examination of the Gulf of Boothia; the circuit of which, to the Strait of the Fury and Hecla, according to the Esquimaux accounts, cannot be less than 400 or 500 miles. It only remains for us to recommend to your approbation the plan proposed by Mr. Simpson, to perfect this interesting service; which, as he had no wish to avail himself of the leave of absence granted, he is prepared to follow up whenever the limited means required are placed at his disposal.

We have the honour to be

Your most obedient humble servants,

PETER W. DEASE.
THOMAS SIMPSON.

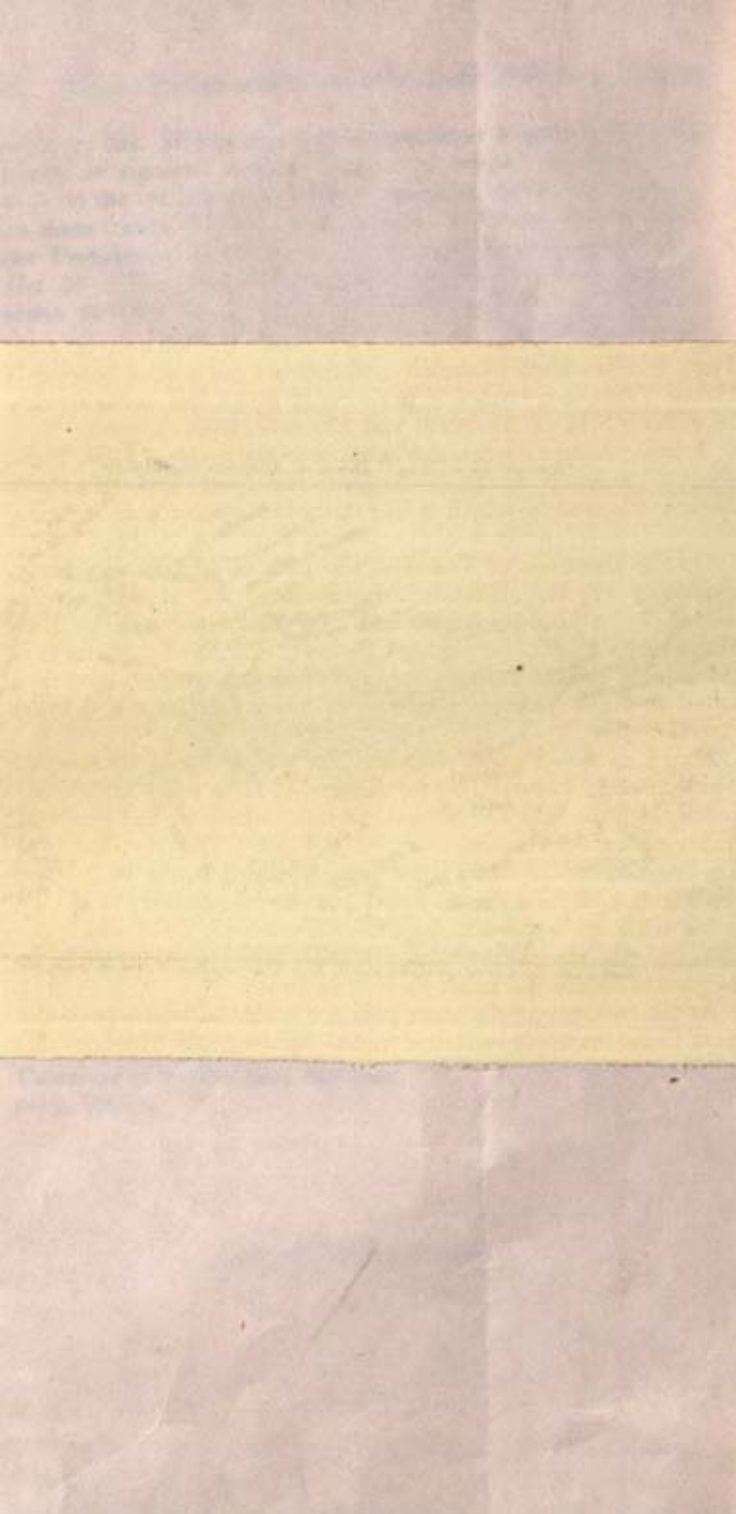
*To the Governor, Deputy-Governor, and
Committee of the Hudson's Bay Com-
pany, London.*

Discoveries of Messrs Deane & Simpson in 1838-9.

To face p. 274.



Chart of the Coast from Coronation Gulf to Beaufort River constructed from the narrative.



VII.—*Journey from Angora by Kaïsariyah, Malâtîyah, and Gergen Kal'eh-sî, to Bîr or Bîrehjik.* By W. AINSWORTH, Esq., in charge of an Expedition to Kurdistan.

DURING the three winter months that the party remained in Angora, various excursions were made to hills immediately in the neighbourhood of the town, in order to obtain bearings for mapping the country; among others we visited the summit of Chal Tâgh, 6 miles south of the city, whence we got a good bearing of Hasan Tâgh, a remarkable peak rising 8000 feet above the sea, 18 miles S.S.E. of Ak-Serâi, and 120 miles from Angora.

A more distant excursion was made to the mines of Ishik Tâgh, about 40 miles N. by E. of Angora, and lying 4560 feet above the sea; the route to which is laid down in the accompanying map.

On the afternoon of Tuesday, the 19th of March, our party, consisting of Mr. Russell, Mr. Râssam, and myself, accompanied by a khavâss bâshî and two khavâsses, sent by Zâid Mohammed Pâshâ, as a guard through the Kurdish districts of Hâimâneh, quitted Angora, and travelling in a westerly direction, halted at Emîr Yamân, a village of twenty-six houses, 4 hours from the city.

March 20th.—Passed a small lake which it took 25 minutes to ride round; beyond this we descended from a low undulating country into the valley of Murtah Ovah-sî, which we had explored higher up on our excursion to Ishik Tâgh. The peculiarity of this fine and fertile valley is its being bounded to the W. by the prolongation of the hills of Ayâsh, and being suddenly closed up at its southern extremity by hills of trachyte, amid which the Châr Sû and the river of Angora effect their junction, while in the pass is situate the small town of Istânós.*

At the entrance of the same pass is a bridge, at which point the great Constantinople road and that to Istânós, only $\frac{1}{2}$ an hour off, separate. In descending it, compact uniform trachytes are succeeded by trachytic conglomerates, near Istânós, broken up into peaks and pinnacles, and backed by steep cliffs of rude but picturesque appearance. The town contains about 400 houses, 50 of Mohammedans and 350 of Armenians; it occupies the right bank of the river, and, confined by the cliff, forms a long narrow street, which is well stoned up, like a quay, and adds to the general appearance of comfort and cleanliness.

A remarkable rock, almost insulated from the cliff, advances over the lower part of the town. It is crowned by ruins of former times, covered with storks' nests, and burrowed by cavernous passages

* Vulgò Stânós.

difficult to reach. These caves measured, the first 9 feet by 7, the second 34 feet by 10, with an opening to the E.

Another series of caves, approached with some difficulty, stretched along the face of the cliff in three tiers. The first chamber was reached by a gallery on the face of the rock, 16 paces in length: from this another gallery ascended, partly in stairs, by the side of the rock 18 paces, where a little protection is given by a wooden railing. A long series of chambers were there entered, some having wells for water, and most of them fire-places. The whole extent was 145 paces; the chambers seven in number, the galleries four; but many of the chambers were again divided, as if for one or two families. There were no remains of antiquity discovered during this examination, and the caves appear to have been places of refuge from persecution, or a retreat for security or defence. In the burial-ground of the town there were some fragments of large columns and cornices hewn in trachyte, and one tombstone of white marble, with an illegible Greek inscription, probably brought from some other place.

The left bank of the river is occupied by gardens, and the new church, which does credit to the industrious Christians of the place, who toil chiefly in merinos and twist.

21st.—Mr. Russell and I rode out early in the morning, accompanied by a guide, to ascend the Gökklú Tágh, the highest mountain in this part of the country; turning to the left, just above the junction of the Chár Sû and Angora river, we soon quitted the trachytes and gained a barren country of chalk-marl and greensand, here and there disrupted or traversed by dykes of trachytic rocks. The district was hilly, with the usual character of friable or marly formations, rather abrupt and shingly declivities and round-topped hills; on one of these, to our right, were some huge stones, which appeared as if once piled together with regularity. After 2 hours' ride, crossing a small rivulet with red water, we began our ascent, and soon reached the village of Gökklú, of about 40 houses. Here we obtained another guide, and proceeded in our ascent, crossing several glaciers, amid a dense fall of snow, accompanied by a strong wind from the N. After about $\frac{1}{2}$ an hour we reached a Yailâ, or summer station, near which was a cave celebrated in all the adjacent country, being distinctly visible at a great distance, from its occurring in the face of a cliff which rises almost perpendicularly to the summit of the mountain. The cave, however, only presented us with a wide semi-circular opening in indurated limestone, which also contained large veins of calc-spar and some travertino. The cave was 50 yards in width, and 20 yards in depth; and had also lateral small caverns, and nearly vertical passages of no great interest. It was fronted by a wall of stone, which enclosed a kind

of platform for keeping sheep or cattle. As the snow continued to fall so densely, that we could with difficulty see a few yards before us, we gave up any further ascent (the chief object having been to obtain distant bearings), and returned the same evening, both wet and cold, to the hospitable Christians of Istánós.

22nd.—From Istánós we visited the junction of the Chár Sû and Angora river,* which occurs amid cliffs of trachytes, about 200 feet in height; and from thence we continued in a south-westerly direction over hills of the same character as yesterday; passed Tatlar, now a ruined village, on the left bank of the river, Atâ-jik small villages beyond A'nâ-Yûrt, also a poor village with small lake to the S. Beyond was Atâ Tepeh (island hill), of volcanic origin of rather a singular conical form, which carrying tilted-up formations in a long line to the S., has caused a remarkable bend in the river, from whence its name: crossing the neck of the peninsula we again reached the banks of the river, backed here by the hills of Germesh, rising from 800 feet to 1000 feet above the plain, and a little farther on we came to the farm of the Kârâ Kóyunlí, or black-sheep tribe, consisting of about 20 houses enclosed in a square, like an Arab or Persian fort. The valley was bounded to the N. by the westerly prolongation of the Ayâsh hills, composed of chalk, chalk-marls, and red and ochrous yellow sandstones, dipping N.W. at an angle of 25°, and preserving great regularity.

23rd.—We rode out early in the morning to visit the castle of Germesh. The river was forded with difficulty, although in summer it is said to be nearly absorbed by the surrounding friable soil. Our first visit was to the warm spring (84° of Fahr.), which issues from the declivity of the castle-hill. Over it there is a small bathing-house, with a circular dome, constructed of stones cemented by mortar, and apparently belonging to a remote Mohammedan era, although ascribed by the natives to the former possessors of the soil, under the usual designation of Genoese.

The ruins of a castle, apparently of Roman origin, occupy the summit of the same hill, which constitutes the most easterly point of the Germesh Tágħ. This castle, now in a very ruinous condition, was built of stone, cemented by good mortar, and consisted of an interior portion, 58 feet in length by 30 in breadth, bounded to the N.W. by steep cliffs, 36 feet deep, and to the S.W. by a wall 19 feet deep. This more approachable side was, however, defended by an outer rampart, 50 feet from the interior, and having three round towers, one of which rises to the N. of the highest part of the fort.

The summit of the hill, about 700 feet high, consists of

* Enkûrî Sû, called at Angora Chibûk chûi (Pipe River).

hypersthene rock and basalt; the declivities exhibited trap, tufa, and conglomerates.

Returning to Kóyunlí, we joined the rest of the party, and proceeded over a level plain of river alluvium 4 miles, to the point where cliffs of chalk approach the river banks from the N., leaving a small and fertile plain, succeeded by Yókarí Turkhálí (Upper), a village in a chalk ravine, where the river is received among hills, and where there is also a wooden bridge. The hills soon become higher, with rounded summits, and rather steep declivities, being composed of indurated limestones in waved and contorted strata; and we entered a pass that presented some picturesque points of view. About 1 mile from the entrance is a copious hot spring, of very pure and clear water; and there are remains of an ancient road, that was in part hewn out of the rock. Beyond this a large cave is seen at an elevation of nearly 400 feet from the valley below, which contains the ruins of a building of strength, adapted for defence. This had been once the retreat of robbers, for whom the pass offers many advantages in the pursuit of their avocations. Near the exit of the valley the limestone reposes upon mica-schist and clay-schist, with quartz-rock. Beyond this is an open plain, in part cultivated, with the village of Ashaghi Turkhálí (Lower) to the right, bounded, to the N. and W., by a long range of uniform low hills of gypsum. The river, free from the rocky pass, now takes a more westerly direction; and we followed a middle route between it and the hills for about 4 miles to the village of Sarrubás, the residence of an A'yán, and where we were to obtain fresh horses.

24th.—We continued our journey along the same plain, with the river to our left, and gypsum hills to our right; the valley is about 5 miles in width, and bounded on the S. by the Germesh hills. After travelling from 5 to 6 miles the valley begins to narrow; and in the gypsum cliffs, as they approach the river, are numerous caves, used as folds for sheep of the Angora breed. There was then a sad mortality among these delicate animals; many were dying before our eyes, and the vultures were so glutted as to be too lazy to move.

Below is a bridge over the Angora river, by which a road is carried to Servi-*Hışár*,* fording the *Sakáriyah*, $\frac{1}{2}$ a mile further on. At this point both rivers enter wild and rocky passes in sienitic rocks, which here suddenly succeed to the gypsum; a narrow peninsula of the latter separates the two rivers, expanding as it extends upwards to the N. The *Sakáriyah* has a very tortuous course; and, after forming several small lakes, enters with its tributary into the sienites; after flowing through which, amidst falls and precipices, for about $1\frac{1}{2}$ mile, the two rivers effect their

* Vulgò Servi *Hışár*.

junction, just before the igneous rocks are succeeded by an open plain, soon again shut up by other mountains.

By this excursion we determined that the site of Pessinus did not exist, as Col. Leake supposed, on the E. side of the Sangarius. Mr. Hamilton and M. Texier have, I believe, identified the ruins of Bálá-Bázár with that place; but some difficulties remain to be reconciled in the march of Manlius; and what is to be said of Plutarch's statement that Cato the younger *walked* in one day from Ancyra to Pessinus?

Our luggage, escorted by Mr. Rassám and two Khavásses, had gone direct from Sarrubás to the village of Mislú, fording on their way the Angora river (Engúrí Sú). Having accomplished our exploration, we had thus in part to retrace our steps between the two rivers, over low undulating hills of gypsum, with some limestone and breccia deposits, and then across a wide plain, extending from the castle at the eastern end of the Germesh Tágh, to the village above mentioned, situated at its western end, a distance of about from 12 to 15 miles in a straight line. At the western extremity, trap rocks no longer occupy the whole mass of the hills, but only the summits, and repose upon cretaceous marl. There is one hill further W. than the village; beyond it is the vale of the Sakáriyah; and there are no other hills of importance intervening between this and the conical summits and serrated peaks of the Sevrí-Hisár mountains.

Mislú was once a flourishing village, probably on an antique site; but its walled-in gardens are now neglected, and its houses falling into ruins. About twenty only are still inhabited. The country is watered by many copious springs: partridges begin to abound, and ground-squirrels have made their appearance in numbers.

25th.—We ascended the pass in Germesh Tágh, S. by W., and entered upon a fertile valley, stretching from E. by N. to W. by S., and shut up at its eastern extremity by a ridge that unites the Germesh Tágh with the Sha'bán-úzi Tágh, of which bearings were taken from the Chál Tágh, near Angora. The latter is composed, like the former, of cretaceous rock and basanite. The Sha'bán-úzi has also sandstone on its southern declivity. Before us was a large village, also called Sha'bán-úzi. The rivulet of the valley is a tributary to the Sakáriyah.

The ascent of the hills of Sha'bán-úzi occupied us about 1 hour. From the summit we had an extensive prospect. The undulating district of Háimáneh, the valley of the Sakáriyah, the mountain of Ayásh, with the distant Elmáh, Idris, and Sevrí-Hisár chains, formed the chief features. Descending the hills by the yáílá of the village of Yaghmúr Bába (Father Rain), and passing

some small caves with hewn arches, we reached a fine cultivated plain, where we first entered the district of *Háimáneh*. Our road lay along continuous fertile lands, producing scarcely anything but wheat and barley, till we reached *Karghah-lí* (Jackdaw town), a large village, the seat of the *Vaivodah* of the district, and having every appearance of much agricultural wealth.

26th.—The rich agricultural land around *Karghah-lí* does not extend far: we had not travelled an hour to-day when we found ourselves upon a high undulating upland of chalk, without wood or cultivation, and but few ligneous or vivaceous plants. The vegetation consisted of a few gramineæ and wormwood. The average elevation of this upland, from a number of observations, is 3000 feet. After travelling about 16 miles in a S. E. direction, we came to a valley with a rivulet, divided into two parts by a range of hills, through which the waters find their way by a narrow and precipitous pass of compact limestone. The lower and more northern valley contains two or three villages, the largest of which is called *Ujúk*, and was generally cultivated. The southern valley contained the *Turkomán* village of *Alif*, with tents and about twenty houses, but not everywhere cultivated. At this village we found numerous tombs, columns, cornices, and other fragments, evidently of Byzantine origin, and apparently indicating an ancient site.

From hence our road lay up the same valley till we turned to the E. to *Kádi Kōi* (Judge-village), formerly the seat of government of the whole district of *Háimáneh*. At present it contains about forty houses, built upon the declivities of some barren hills of compact non-fossiliferous chalk, with hard friable limestone, dipping 15° N.

27th.—Having sent our luggage to the village of *Júlúk*, Mr. Russell and I started to visit some warm springs in the neighbourhood, where some remnants of antiquity were said to be. We reached them in about three quarters of an hour, and found, as indicated, a large hot spring, presenting the peculiarity of issuing from the top of a round or flat-topped hill, about 300 feet above the adjacent valley. This spring is inclosed in a showy modern building, with the usual dome-roofs, divided into two parts, 32 feet square; one for men, the other for women. The roof of that intended for the men has fallen in, the place being totally neglected and abandoned. The supply of water is considerable; its temperature is 41·5 Cent. (125° Fahr.), the air being 58° Fahr. The baths are inclosed in a space that is surrounded by a wall, 400 yards long by 300 in width. It was also formerly defended by bastions, now in a very ruinous condition. Within this inclosure there is a modern *jámi'*, or mosque, also going to ruin,

constructed chiefly with the stones of a Greek temple; there are also many ruined modern houses, and a burial-ground, with Byzantine tombstones, cornices, pillars, &c., but we found no inscriptions. By the side of this inclosed space there appeared also to have been formerly gardens and respectable houses; but now all is deserted, and not a being was to be seen around.

Our route from the baths passed up a narrow valley, where a few composite plants first appeared in flower, amid limestone shales tilted up at a high angle. From thence we commenced the ascent of *Ardij Tágh* (Mount Juniper), not however, much covered by shrubs of any kind, and composed of sandstone and limestone shales. The crest is elevated about 600 feet above the plain of *Häimáneh*; 900 feet above the valley below; and 3592 feet above the level of the sea.

An hour's descent brought us to the *Turkomán* village of *Kizil Kõî*, where we obtained, after some demur, a change of horses, and proceeded rapidly with these up a long valley, and over naked uplands, to the mountain of *Gökcheh Buñár* (Heaven-gate Spring), at the foot of which were tents of Kurds, newly arrived in these districts. Passing round, we reached the village of *Kizil-jah Kal'eh* (Red-dish Castle), where we were disappointed in not finding the castle which we had expected from its name and from report. It is merely one of the stone-forts so common throughout Lesser Asia. The mountain of *Karajah Tágh* was, however, now only a few miles from us; but as night was approaching, and we had still a long way to return to join our luggage, and as the plague also, which had been stated to exist at *Kádi Kõî*, and in various parts of the country, was again said to be very bad, in order to prevent our stopping at *Kizil-jah Kal'eh*, we were obliged to yield to the *Khavâşşes* and *Sûrujis*, and turn back upon *Chaltis*, a large village, where we did see a few people sick: we then crossed a hill, and arrived late at *Júlúk*, a post-station on the road from *Angora* to *Kóniyah*, situated in a glen of trachytes. From the hill above *Júlúk* we had obtained some valuable bearings, by which, in the absence of astronomical observations, prevented at this season of the year by continually cloudy weather, we were enabled to connect *Karajah Tágh* with *Chál Tágh*, and *Hosein Kází*, near *Angora*, also with the *Ayâsh* mountain, and then again with *Shaṭ-Mûsa* and the *Ardij Tágh*.

28th.—Issuing out of the glen we traversed a plain towards some limestone hills, and, leaving the baggage to pursue its way to *Karâ Gedik*,* we approached the foot of these to visit some sepulchral or monastic grottoes of little interest: crossing the hills we came upon *Kürkli*, a Kurd village, with more grottoes of a similar

* Properly *Gedúk*, i. e., Rent, Fissure.

character, and, proceeding along at a good pace, soon reached a narrow glen, composed on one side of indurated chalk, on the other of trachytic conglomerates. On the side of the cretaceous rocks are several large caves, arranged in tiers. The lower story contains a few large chambers, one of which is supported by square pillars, and has sepulchral recesses. Above is a long central chamber, 19 yards deep, with an arch in the centre, to the right what has apparently been the chapel, 7 yards long by 5 yards in width; while to the left a long gallery leads to a small chamber. This excavated monastery is in the same style, but not so complete as those actually existing at Deïri Za'ferân, near Mârdîn.

From hence, descending the trachytic hill of Kârâ Gedîk, we joined our baggage at the village of the same name, and proceeded in a north-easterly direction 3 hours, over plains of monotonous outline, similar in structure and vegetation, till we gained Banam, a large village at the southern foot of Elmâ Tâgh, and between that chain and another of different composition and appearance, called U'rá Tâgh.

29th.—The range of U'rá Tâgh, which stretches from S.W. to N.E., south of Elmâ Tâgh, is composed of a central nucleus of serpentine and steaschist. These rocks are traversed by dykes of quartz rock, with abundant chalcedony, and have also tilted-up limestone, apparently of the chalk formation. On the northern side there is another association of rocks, consisting of basanites, associated with hornstone, flinty slate, and red quartzites. There is a large deposit of gypsum on the southern declivity. The barometer on the crest of the U'rá Tâgh indicated an elevation of 4630 feet, or 861 feet above the plain of Angora.

In these mountains there have been several shafts sunk in search of copper; and furnaces formerly existed at Karghah-lî, which we had been particularly requested by Zaïd Mohammed, Pâshâ of Angora, to visit and examine. We found only small, although numerous, veins of pyrites, which were not promising. The deserted galleries of the mines had become the retreat of foxes, which were much discomposed by our intrusion. The southern slope of the U'rá Tâgh is covered with fir, which tree is rare on the northern side. Snow was also abundant on the southern side, especially where protected by low oak woods. We spent the night at Karghah-lî, a village of about forty houses, with abandoned gardens, and a fine spring issuing from the gypsum rock.

30th.—An extensive tract of low undulating country, almost like a plain, extends between the U'rá Tâgh and the Kûrah Tâgh, to the S.E. The fall of waters is towards the Kizil İrmâk; and the country becomes more hilly in the neighbour-

hood of that river. This district is called Tabanlı: the plains abound with the large field-partridge and with small bustards. In about the middle of it there is a small stream, called from a neighbouring village Tól. It is only 3 yards wide by one deep, but loses itself in marshes and small lakes before it joins the Kizil Irmák. On arriving at Kúrah Tágh we met with our old friends the saliferous red sandstones, which exhibited themselves chiefly as a coarse grit, upon which were superimposed gypsum, marl, and fresh-water limestones. This was on the outskirts; the central ridge is composed of red and brown sandstones, and sandstone conglomerate; and above, yellow marl and gypsum. During the passage of this chain, we were overtaken by a sharp storm, amid which we had yet to travel several hours. We descended to a small village, and entering a gorge in red sandstone, passed two beds of pink and white limestones, adapted for quarrying, and succeeded by dark-brown sandstone. We thence travelled along another cultivated vale, ascended over a hill-side, and made a rapid descent, in limestone gravel hills, to the large village of Kará-jiler, containing about 300 houses, all inhabited by Mohammedans.

31st.—About 2 miles from Kará-jiler is the celebrated bridge of Cheshni [Cháshnigír*]. It occurs at a remarkable spot, where the river leaves an open valley, in red saliferous sand and sandstone, to enter a bold rocky pass in sienite, which is scarcely more than 1 mile in length. The bridge, said to have been erected by Sultán Murád, is built of red sandstone. It has one large and four lesser arches, at the water's ordinary level, one high up on a rock in the centre of the bridge, and some others still smaller on the level of the water. The width of the river there is 31 yards. The bridge at the highest point is 12 yards above the ordinary level of the water. To the eastward of the bridge is a large village called Kapú Kõi (Bridge-ville). The jurisdiction of 'Izzet, Páshá of Angora, terminates here, so our Khavásses took their departure. The country we were now about to enter upon, belongs to the mines called Denek Ma'den, for which, after changing horses, we immediately started.

Our road lay in a N.E. direction, over a rude but not unpicturesque sienitic mountain, called Begrek Tághí. Below the river pass, we observed two small islands, a house, and ford. On these hills vegetation was forward; the dwarf almond-trees being about to blossom: on the summit we observed graphic granite and a dyke of basalt in sienite. Descending from Begrek Tághí we entered upon a remarkable granitic district, low with rounded whitish hills, but deep rocky ravines, with rivulets, and a gene-

* "The King's Taster," in honour of whom, the bridge was named.—Jehán Numá, p. 626.—F. S.

rally scanty vegetation. This district is inhabited by the Jerid tribe of Turkomans; and in one of the valleys we passed Gotovah, one of their stationary villages, with sixteen houses; beyond it Hájí-'Alí, and the Hasanlú Bába-Sú, with fifteen houses. The country suddenly changed, after a rather long, but not unpleasant ride, when we reached the end of the granitic rocks, there being a fine cultivated plain, called Chápát Óvah-sí. Beyond this we came to a hilly country of indurated limestone, in the midst of which, rising gradually to the heights of Denek, is the village of Denek Ma'den, where are the furnaces and the residence of the director of the mines. We had continued rain all the latter part of the journey.

The ores turned to account at Denek Ma'den are simply galena, more or less argentiferous. The mines in the neighbourhood of the village are now unproductive, the chief vein being at 2 hours' distance. The present produce of the mines, when in full work, is said to be equal to 1000 okes,* of $2\frac{3}{4}$ lbs. each, weekly; which quantity yields $2\frac{1}{2}$ okes of silver. The village near the mines is in better order than most of those establishments; the charcoal is kept in a large wooden enclosure, a handsome fountain pours its waters into a small basin surrounded by trees. The Greek miners have a small church; the Moham-medans have also their mosque, but without a minaret. There were fourteen roasting furnaces, two smelting furnaces, and one open one, for the oxidation of lead and the reduction of silver. The mines have a large jurisdiction, including seven Kázálíks,† from which men and fuel are obtained; and the produce of the taxes is also devoted to the maintenance of the same works. It would have been hard, under these circumstances, if they had not been made to return something to the government; but so jealous are the 'Osmánlís of their mines, that the Ma'den Aghá-sí had been removed, after three years' residence, only a few days before our arrival. The mines were formerly under the immediate superintendence of the government at Constantinople; but it was said that Zaïd Páshá was about to take the responsibility of them upon himself. Our reception at the mines was anything but civil, although we recognised personally some of the miners; on the contrary, much anxiety and jealousy was shown, so it was thought better to continue our journey next day, although I had intended to make some mineralogical researches. The elevation of Denek Ma'den above the sea, by our barometer, is 3340 ft.

April 1st.—Our road descended in a southerly direction along the valley of the Denek rivulet, $4\frac{1}{2}$ miles, when we reached the

* Vulgo, Okah, for Wakíyah, from the Greek and Latin *uncia*.—F.S.

† Or Kázílíks, whence the modern Greek *Καζίλίκι*.—F.S.

village of Jinál O'ghlú, belonging to the Jeríd Turkománs, whose tents we also met with in the recesses of the hills further on, where the valley expands considerably. At 7 miles from Jinál O'ghlú, the Denek rivulet falls into a stream flowing N. 50 E., from the conical mountain called Chelebí to the S.W., to join the river of Yúz-Kát.

Near this point was the small village of Merdán 'Alí, from which we travelled over a hilly uncultivated district, descended to find another tributary of the Yúz-Kát river flowing from a small lake, and then along a gravelly plain to the foot of granitic hills, where is the village of Ahmed, or Hamíd, of fifty houses, inhabited chiefly by Turkománs. Its elevation is 2700 ft.

2nd.—We could not get the necessary quantity of horses from our Turkomán friends, so a part of the baggage was put into 'arababs, or carts, drawn by oxen, which proceeded slowly up Mount Kará Góz (Black Eye) while we made a lateral excursion up one of the culminating points, to examine an old castle, but found only the remnant of walls, now divided into cells for sheep and goats. The labour of the ascent was amply repaid, however, by a good round of compass bearings. Its elevation is 4180 ft.; and the fort commanded the chain of Elmá Tágh, Idrís Tágh, over Kal'ehjik and the Báránlí chain.

At the southern foot of Kará Góz is the village of 'Isá Kójah-lí, from whence we proceeded, still in a southerly direction, over a fine fertile plain, to Sogher,* a small village where we were to obtain horses. This plain is bounded to the S. by the Kárván-serái Tágh, with its castellated summits; to the W. by the lofty snow-clad and wooded range of Báránlí, terminating to the N.W. in serrated ridges, evidently sienitic; to the N., by the Kará Góz, and to the E. by the remarkable mountain designated as Bóz-úk. The plain of Sogher is at an elevation of 3320 ft., and has all the characters of a true alpine plain; marshy, with a vegetation of rushes and hedge-grapes, and no shrubs or flowering plants of a warm climate. We had a sharp frost at night.

3rd.—Crossed the plain to visit Tásh Kasmah: large quarries of marble, opened in ancient times, but now not in use, at the foot of the Báránlí chain. This mountain-range, rising upwards of 2000 ft. above the valley of the Kızıl Irmák, is composed of a nucleus of granite, sienite, gneiss and mica-schist, tilting up limestone and some sandstone. The granitic rocks predominate in the W. and N.W.; limestones in the central portions, where, in consequence, the outline of the mountain is now rounded. The rocky cones and castle-bearing pinnacles near Jemálah are composed of granites and gneiss. Mica-schists predominate in the

* Properly Sighir i.e., Buffalo

easterly and south-easterly portions. The limestone at Tásh Kasmah is non-fossiliferous, rather coarse-grained, but of a pure white colour. At the eastern end of the plain, the valley of the Kír-Shehr river opened before us; but we turned to the westward, to the village of Jemálah, of sixty houses; above which, upon a rocky hill, are the ruins of an old castle. This building proved to be an edifice of various ages, formerly constructed of large hewn stones of granite and gneiss, repaired and modified by the Mohammedans in former ages, and in a still more slovenly manner in modern times.

A pile of stones, which is said also to mark the site of a castle, called Gechí Kal'eh (She-goat Castle), occupies the summit of the mountains at the opposite side of the entrance of the valley of Kír-Shehr. At 4 or 5 miles down this valley is the village of Kızıljah Kõi, where the beautiful and renowned gardens of the once flourishing town of Kír-Shehr commence, and extend not only to the town itself, a distance of 5 miles, but also far beyond, much exceeding all published reports. The rivulet of Kír-Shehr is called the Kalichí-sú and is not the Kónák, by some considered as the Cappadox of Pliny.

Kír-Shehr is a sad example of a town ruined by religious fanaticism. It never was very populous or rich, but, with gardens of unbounded fertility, possessed most of the necessities, and many of the luxuries, of life. These tranquil comforts brought around it, however, dervishes of many orders, to whom religious zeal bequeathed various edifices which, like villages, are, to the number of seven, distributed round the town—the resources of which they have drained and exhausted to the very last: what houses still remain are mud hovels of the lowest description; the only j'ami' is ruinous, and its minaret broken in half: 3 kháns are abandoned; the bezestein, which is a goodly building, is untenanted. There are six mesjids; and the population is stated to be from 3500 to 4000. There is only one Christian resident, who is employed in the manufacture of gunpowder.

The mountains N.E. of Kír-Shehr are called Khirkah Tágh, and are said to conceal a rock-fort, called Şefá Kal'eh. At a short distance from the town is a hot spring, amid some rocks of travertino, which have apparently owed their existence to hot water containing lime, iron, and other earthy matters in solution. The aspect of these rocks is very various; waved and contorted, with huge nodules of argillaceous ironstone. The spring is protected by a wall, and its water falls into a small bath. The temperature was 36° Cent., or 113° Fahr., the air being at the time 53° Fahr. The weather was clouded and rainy, and allowed of no observations at Kír-Shehr, although it is a point which we were very anxious to fix astronomically.

5th.—The ruins of U'ch Ayák (Three Legs), to which our attention had been directed by Mr. W. I. Hamilton, as existing between Kır-Shehr and Neú-Shehr, we ascertained to have been passed already in our journey, and that when at Jemálah we had left them 2 hours to our left. Mr. Russell and I accordingly, this morning retraced our steps along the Kálíchí-sú as far as the bridge of Jemálah, and continued thence N. 5. E. to Juhún, for which place we had a letter from the Mutesellim of Kır-Shehr, to procure us a guide. Passing over the south-eastern slope of Bóz-úk (the Bóz Tâgh of Mr. Hamilton's informant), we gained in an hour's time the crest, from whence we saw an extensive plain stretching before us, in part cultivated, with here and there the encampments of Turkománs; and only bounded by the hills of saliferous red sandstone. In this plain, and immediately below us, was a ruinous and rather lofty structure, isolated at the foot of the hills, without any adjacent building or ruin.

Upon closer examination this ruin was found to be built of baked tiles, with a deep mortar bond, and to belong probably, to the Byzantine era. It appears to have been a monastery or church of the Byzantine Greeks; and was perhaps used in more modern times; but the dome has fallen in, leaving the cross arches to stand forth in nakedness; whence the present name of the ruin. There is a small spring and a collection of recent Mohammedan tombs in the neighbourhood. Bóz-úk Tâgh is a granitic mountain, not so lofty as Báránlí, and consisting of nearly one isolated mount, with a stone fort upon its summit. All the country around appears to have been once in a state of defence; six castles are to be counted on the hills around the plain of Şogher. The neighbouring hills are composed of granite, gneiss, and mica-schist, supporting cretaceous limestone and red sandstone. The last elevation of the Báránlí, the Bóz-úk, and the Kárvánserái chains of hills, was posterior to the deposition of the supra-cretaceous red sandstone.

We returned to Kır-Shehr in the evening; the Hasan Tâgh, with its bold and sharp, although not conical, but rather bicapitated summit, reflecting the gleams of the setting sun from its perpetual snows, was an object of constant attraction during the ride. Kır-Shehr appears to be at an elevation of 3095 ft. above the sea: and the adjacent plains may be considered as forming part of the great central plateau of Asia Minor.

6th.—Our route lay S.E. by S. over an undulating grassy country, at the foot of the Kárvánserái hills, the soil being composed of gravel, quartz, and primary schist; 3 miles from Kır-Shehr is a nearly circular mound of earth, 40 ft. high, sur-

rounded by the ruins of a wall 224 paces in circumference, with the remains of six lateral towers. In the same neighbourhood there is a spring, of which the water expands into a weed-clad basin. This remnant of an ancient fort, or guard-house, is called *Göl Hişâr* (Lake Castle). Passing *Emîrlar* village of twenty houses, near the right bank of the *Kızıl İrmâk*, here flowing through red sand and sandstone, we arrived at *Mûjûr*, the ancient *Mocissus* (?).

Having about 600 houses, *Mûjûr* is distinguished as a *kaşabah*, or market town, the intermediate between a city, (*Shehr*), and a village, *Köi*,*—a word that is variously pronounced in different parts of this country. *Mûjûr* is built upon a calcareous freestone, easily wrought and quarried. Caves and subterranean dwellings begin to make their appearance here. There are many gardens in the neighbourhood; and a little higher up the valley, is a mound, the probable site of the castle of *Mocissus*. In other respects, remnants of antiquity are rare. The first time for many a day, the weather began to clear up, probably from our getting more southward; and we obtained a meridian altitude of the sun, giving for the latitude of *Mûjûr* $39^{\circ} 5' 40''$ N.; its elevation being 3140 feet.

Leaving *Mûjûr*, we passed *Kurû Göl* (dry lake), in a valley, a small village with caves, and beyond it *Kurû Kûm* (dry sand), another small village entirely inhabited by *Troglodytes*, and arrived in the evening at *Hâjî-Bektâsh*, a holy spot, situated in a high part of the country, and visible a long way off.

Hâjî-Bektâsh is a remarkable example which may be adduced against the constant outcry that taxation is the sole cause of poverty, and of the present ruinous condition of villages and towns in Lesser Asia. *Kîr-Shehr*, which, with its luxuriant gardens, fine soil, abundant water, and warm exposure, might be made a mart for the production of silk, we have seen, is but a wreck. When asked why the town was so prostrate and fallen, the ready answer was, excessive taxation. At *Hâjî-Bektâsh*, no one complained: on the contrary the people boasted of their privileges and prosperity. The tomb of *Hâjî-Bektâsh*, one of the great Turkish Saints, and founder of an order of *Dervîshes*, has saved this *Kaşabah* from taxation; for all its inhabitants are required to pay, is for the support of the tomb; and a portion of the salt-mine of *Tûz Köi* is also assigned for the same purpose. Yet notwithstanding these advantages, every other house is, as usual, a ruin. The 'ayân has built himself the only stone house, while the inhabitants, having little to pay, work still less, but sit in listless

* The *ç* in *köi*, and several other Turkish words, is pronounced like the French *eu*, or German *ö*.—F. S.

groups, sunning themselves and smoking through a day's existence. The whole appearance of the place is that of unproductiveness and idleness. The tomb itself, which it ought to be their pride to have in a good state of repair, is allowed to crumble into ruins.

There is close to this place a high mound, in part composed of loose materials piled up upon strata of red sandstone, and surrounded by a moat or ditch. This mound is called *Kará Kavuk* (Black Bonnet); and by Rennell is identified with the site of Gadasena, a place anciently renowned for its sanctity, as this place is now (Strabo, p. 537); but we are, from various circumstances, more inclined to place Gadasena at *U'ch Ayák*.

Háji Bektásh is situate at an elevation of 3780 feet above the level of the sea; Mount Argæus bearing S. 52° E., *Hasan Tagh* S. 32° W. by compass.

8th.—In order to shorten a great bend of the *Kızıl Irmak*, the early part of our route to-day was mountainous, by the conical hills of *Aká-juq*, composed of quartz reposing upon gneiss and mica-schist. On descending upon the plain of the *Kızıl Irmak*, we passed the village of *Salándah*; and arrived, in time to obtain a meridian altitude of the sun, at this great bend of the river, which has so long led geographers to suppose that there was an eastern and a southern branch of it. It is in $38^{\circ} 48'$ N.

The low country near the river was occupied by sandstone and cretaceous rocks, in nearly horizontal strata. Keeping along its banks, we were ferried over at *Yárapasón*, where it is about 400 yards in width, but very shallow. *Yárapasón* at present contains about 300 houses, and is built along the side of a cliff composed of a friable light pink-coloured sandstone, supporting cretaceous limestone. The same cliffs extend in a sort of semi-circle, for nearly a mile, everywhere perforated by caves of various dimensions, a few of which are ornamented with columns and devices, but we found no inscriptions. At the eastern extremity, the rocks have been denuded, leaving the harder and coarser material in the form of numerous cones and heaps, of from 10 to 30 feet in height. Many of these contained also a separate grotto, often sepulchral. *Yárapasón* appears to be the *Osiána* of the tables.

In our route to *Neú-Shehr* (New Town), we passed a ravine still more remarkable for the curious forms in which the same friable rock presented itself. Sometimes truncated cones balanced huge masses of rock upon their points; and at other times they were wrought, apparently by the action of the elements, into fantastic shapes, in which the resemblance of lions, frogs, lizards, and birds, might be traced. As a proof of the near approach to truth exhibited by some of these forms, it may be mentioned that

one of our party was thoroughly impressed with their having been sculptured by the hand of man, and our súrújí insisted upon their being the work of a gaur.

9th.—The origin and correct etymology of Neú-Shehr, or Nev-Shehr, has been given by our learned Foreign Secretary, Mr. Renouard, in Mr. W. I. Hamilton's memoir.* It is a pleasing and cleanly town, situated at the side of a bold ravine, and itself rather darkly backed by high cliffs of volcanic rock. The Greeks, who form a considerable portion of the community here, appear to have congregated into the "new city;" for all the numerous and various troglodyte villages in the neighbourhood, are now, for the most part, as Sátilav, Yárapasón, &c., abandoned by their original occupants. Neú-Shehr contains 2000 houses of Mohammedans, 800 houses of Greeks, 60 houses of Armenians, 2 large jámi's, 1 greek church, 9 kháns, 1 bath, 6 mohammedan schools, and a quadrangular castle, with round towers at the angles. In a commercial point of view, it is, when compared with other towns of the interior of Asia Minor, a very flourishing place. Up the ravine, is the small village of Górah; and downwards, at a short distance, the picturesque troglodyte village of Nár, or the pomegranate. Neú-Shehr is in latitude $38^{\circ} 37'$, and at a mean elevation of 3940 feet.

10th.—We had intended making an excursion to Urgúb, to see the curious rocks described on that route by Mr. Hamilton, and earlier travellers, but it snowed all night and all day; bar. 25.510 inches; mean of ther. 42° . As we had now quitted the ancient Morimene and Chammanene, it is important to make one remark upon the hydrography of these provinces. Pliny (lib. vi. c. iii.) mentions the river Cappadox as forming the boundary between Morimene and Galatia. Rennell identifies the Cappadox with the Kardash Cesme (Karindásh Cheshmeh) of Tavernier, on the left bank of the Kızıl Irmák. Colonel Leake, and most other geographers, have a large river named Kónák, flowing into the Kızıl Irmák, between Kır-Shehr and Cháshnigir Köprü (on the right bank). This does not agree with our observations; for in that interval we met with only two large rivulets, both of which were feeders of the Delíjah Irmák, or Şú (Maddish water), which is a large river on the road from Angora to Yúz-Kát. It appears thus that the Cappadox corresponds with the river of Kır-Shehr, or the Kalichí-sú. There is, however, a river called Kónák, which has its source near Yúz-Kát; and, flowing past Búlák and Imlar, empties itself into the Kızıl Irmák, between the parallels of Kaïsariyah and Urgúb.

11th.—Having been detained by continually bad weather, we

* *Geographical Journal*, vol. viii. p. 148.

rejoiced to-day at a little improvement, our next steps taking us to the salt mines, and thence to the lake of Kóch-Hisár. The Shehr-Kyayási (ketkhodá-sí)* gave us a little trouble previous to our departure, having asked us for 400 piastres for the delay; also requiring two piastres per hour for horses, the ordinary post price being one piastre; and further asserting, because Mr. Russell had been a little unwell, that we had brought the plague into the town. These matters were not arranged without some discussion with the mutesellim.

12th.—We travelled four hours in a N.N.W. direction, over a plain of volcanic sand, and extended formations of basanites, amid which rose curious denuded hills, to Túz Kõî (Salt Ville), near the banks of the Kizil Irmák. Close to this village are the salt-mines, to which the attention of the expedition had been called, as being near Hájí Bektásh. The salt occurs in a powerful bed, the extent of which it was impossible to judge of, as none of the actual shafts go to its floor, although many display its roof. This bed occurs in a stiff yellow clay, sometimes bluish coloured, with abundant crystals of gypsum, which is superimposed upon it in horizontal beds, a little to the east of the mine. There are about seven shafts now open: these are distributed, in a rather curious manner, round the sides of a pit formed by the excavations of former years; and they run in to various depths, from 20 to 100 feet. The salt bed was about 40 feet below the level of the hill; the galleries are carried down at a high angle of inclination; and the salt is taken out in baskets, carried up rude stairs cut out of the clay. There was also a shaft at the bottom of the pit, but it has long ago fallen in, and is now the grand receptacle for rain water. While Mr. Russell and I were at the mines, there came on a severe thunder storm: torrents of water came pouring, in a few minutes, into the pit from several sides at once; the soft clay gave way in large masses, and several slips occurred round the sides of the pit. It appears very likely that works so carelessly carried on, will, some day or other, be overwhelmed all at once.

I shall not venture further here than to state that these salt deposits are evidently of a supracretaceous or tertiary era. The geology of all Garsaura, or Garsauritis, is of a most interesting character; but, notwithstanding the intimate connexion of that branch of knowledge with physical geography—here affecting not only the general features of the country, but also the dwelling-places of its inhabitants—I shall not dwell upon local peculiarities for fear of repetition; but will afterwards, in as brief a *résumé*

* This Persian word is always shortened into kyayá by the Turks. It signifies "deputy locum tenens."—F. S.

as possible, endeavour to establish the chief points in the history of these remarkable rocks.

14th.—Our route lay S.W., up the valley of the Túz-Köi rivulet, containing fresh water, and passing Kızıl Köi, a village of thirty dwellings, chiefly caves; and Chiftlik,* another small village, in part of caves, in 2 hours we reached Tátlar. This place has been already described by Mr. W. I. Hamilton.† I have only to notice the perfect colouring of the paintings in the cave, where is the old Greek MS.; the existence of a castle, on the top of the cliffs, and a kind of dirt-bed between the sedimentary rocks and the basanites.

From Tátlar our direction lay N. 60° W., over undulating downs of basanitic pebbles. At 4 miles is Chular, a Turkomán village of thirty houses, by side of rivulet; and about 3 miles farther, we entered a rocky pass of sienite, with a poor village. These hills are called Tášh-Teller, and are almost entirely sienitic, with the rocky serrated outline generally peculiar to such formations. We travelled along a wide and monotonous plain, upon which many camels were feeding, extending from the foot of the Tášh-Teller to that of the loftier mountain of Akájik, both of which had furnished us with bearings ever since we reached Kír-Shehr. The same evening we arrived at Şári Karamán, the seat of a vaivodah, sent hither to govern the Turkomán tribes, and not appointed by themselves. The dogs were very ferocious: one of them tore a large piece out of Mr. Rassám's coat. The people were only a little better.

15th.—Crossing a bridge over the rivulet of Akájik, a gentle ascent led us to Búz-Khur, a village of caves, with ruins of a khán. On our left was the mountain of Kharín; and before us, and extending to the limits of the horizon to the right, a nearly level plain of cultivable and in part cultivated land. At Dómánlí, distant about 3 miles, the face of the country altered; and at Danishmanlí, a village of twenty houses, 2 miles further on, were hills of sienite, rather remarkable, inasmuch as impacted masses of diorite, passing into fine-grained sienite, are distributed throughout the formation, which itself consists of small grains of hornblende, amid large crystals of feldspar. A rocky range of sienite extended hence to A'yánlí, the seat of the A'yán, containing about twenty houses, where we arrived well drenched by the rain, which fell incessantly all the latter part of the journey. Half an hour to the N.E. of A'yánlí are some ruins, and part of a Byzantine church. The natives know no name for the place, save Kilisá, 'the church;' and it is from thence that they draw

* *Chiftlik* means as much land as can be ploughed by a yoke (chift) of oxen: it is therefore only applied to these caves as habitations.—F. S.

† *Geographical Journal*, vol. viii. p. 147.

the marble columns which decorate their rustic burial-ground. This site appears to be upon the cross-road which led from Parnassus to Archelaüs Colonia, and which in this district, contained the stations of Ozzala, Nitazus, and Ardistana. The direct distance from A'yânli to Ak-Serâi is 30 miles, which approximates to the distance of Ozzala; but, considering the inequalities of the soil, more with Nitazus, the two stations not being very far from one another.

16th.—A fall of snow set in in the evening, and continued till the morning, remaining on the ground and on the hills at A'yânli, at 3800 feet above the sea. We did not, in consequence start till after 10 A.M. (it was still snowing hard, with a cold northerly wind), over an undulating district of granite and sienite, reaching only the village of Sipâhiler, a term applied in Asia Minor exclusively to horse-soldiers. We were here kindly received by the inhabitants belonging to the Turkomân tribe of Sherakli, of which we were the more sensible, as we had left the Dómánli tribe at the last village, on account of the ill-feeling exhibited towards us.

Sipâhiler, a village of about sixteen houses, at an elevation of 3580 feet, is situated at the foot of a range of sienitic hills, which rise about 800 feet above the village. This range is called the Kójah Tágh; and the natives point out three hill-forts upon different rocky summits, which were, however, mere accumulations of stones, without masonry. One of these is called Chákchák Kal'eh-si, and another Bóilújah Kal'eh.

17th.—From the upland, at the foot of the Kójah Tágh, along which we continued our route this morning, we had a fine prospect of the Kizil Irmák, and were enabled to connect our present journey with the Báránli Tágh, Kír Shehr, Mújúr, and Hâji Bektâsh; the hills above which were all distinctly recognisable. Beyond the village of Demir-lù Kôî, and about 7 miles from Sipâhiler, we turned in a south-westerly direction to cross the Kójah Tágh. To our right, or N.W., was a bold rocky granite group, named the Şarú-bulák Tágh, the offsets of which stretched down to the Kizil Irmák, which river separates them from the Báránli Tágh, itself advancing in a rather remarkable bold and isolated summit, over the Kizil Irmák, which has a very tortuous course from hence to Cheshnî Kóprî. The pass over the Kójah Tágh is commanded, although at some distance, by a hill-fort on a high sienitic cone, called Toklú Tal'eh. Soon after descending from this range of hills, the plutonic rocks are succeeded by indurated limestone, in curved and contorted strata; these by grey and brown sandstone, composed of granitic sand and pebbles: and these again by saliferous red sandstone, which alternate with gypsum, and form low hills along the eastern shore of the Great Salt Lake. Passing the village of Turn-ábád, we obtained a meridian obser-

vation in N. lat. $38^{\circ} 56'$; and after a short journey (much delayed, however, by one of our baggage horses failing), over a hilly district, we came to the pass of *Kázi úyük*, in sandstones and gypsum, and which is defended at its entrance from the west by the castle of *Kóch Hişár*.

The view of the Great Salt Lake from the entrance of the pass is very beautiful, but it wants wood. Narrow at the north, where it is backed by low hills, it subsequently expands almost beyond the reach of the eye; is next lost behind the hills of *Injeh Búrnú*, a small cape to the S. W., and then re-appears to the south as a wide and distant expanse of water, backed by lofty summits, which are, however, in reality at a great distance beyond the extremity of the lake.

18th.—In the sheltered and sunny exposure of *Kóch Hişár*, many flowering plants welcomed us at once to spring. The castle, from whence this place derives its name signifying "Ram Castle," occupies the top of a hill, which is nearly isolated from the remainder of the range, and commands, according to ancient ideas, the town and the entrance to the pass of *Kázi-úyük*. The foundations of the castle are now difficult to trace, and occupy an oblong space, 282 feet in length by 150 feet in width. The loose stones are piled up within this space into so many sheep and goat folds, whence its modern name. The present village of *Kaşabah* contains 130 houses, but no resident Christians. Here are salt-petre works. A mer. obs. gave its latitude in $38^{\circ} 55' 50''$ N.; approx. elev. 2856 feet. The information we obtained regarding the value of the salt lake was pretty nearly the same as is given by Mr. W. I. Hamilton.* A portion is said still to be claimed by *Ahmed Beg*, son of *Chapwán O'ghlú*; and *Hájí 'Alí Páshá* deposes the *Mutesellim* of *Ak-Serái* to receive the revenue.

19th.—We bent our steps towards the northern end of the lake, our route lying near its shores, along a level plain, bordered to the right by a long range of low hills, at first of red and brown sandstone, then capped by gypsum, at length entirely supplanted by the latter deposit, which extends to the extreme northern end, where the hills terminate in a plain bounded to the north by the *Páshá Tágh*. This last chain, noticed in Mr. Hamilton's memoranda, is, as that traveller suggested, composed of red sandstone, supporting cretaceous marl and gypsum. It does not rise more than 800 feet above the lake. The weather being fine, we obtained a good mer. alt. of the sun, which gave, for the most northerly point of the lake, $39^{\circ} 7' 30''$ N.; bar. 27.142; alt. ther. 65° .

Passing by *Arghun Kóí*, a deserted village, with bad water, we travelled in a westerly direction over hills of cretaceous lime-

* *Geographical Journal*, vol. viii. p. 147

stone, covered by limestone breccia, affording a scanty pasture to large herds of camels, and food for flocks of small bustards. We were approaching *Qarājah Tāgh*, from the southward: a small lake of fresh water was to our right, and a more fertile plain was occupied by several encampments of Kurds, with their flocks; in the midst of which was the large village of *Kulú Kōi*, containing upwards of 100 houses, only lately garrisoned by the cavalry of *Hájí 'Alí Páshá*, who had obtained from the Kurds much stolen property, taken with them on their journey northwards towards *Háimáneh*, on leaving the vicinity of *Kóniyah*. We had travelled 12 hours from *Kóch Hisár*; and *Kulú Kōi* was 9 hours from *Kızıl-jah Kal'eh*: the district is called *Koreish Kazálık*.

20th.—From *Kulú Kōi* we were enabled to follow a more southerly direction, and to approach the shores of the Salt Lake, of which it was our chief object to recognise the form and direction as much as possible: 3 miles S. 30° W. from *Kulú Kōi* is a hill or mound with a moat, called *Ba'l-chah-Hisár*. The country around undulates gently; the soil is cretaceous; and having many springs, is covered with grass, in consequence of which the tents of Kurds are to be seen in every direction. Out of this district rises a nearly isolated hill of a long form, about 800 feet above the level of the lake, and formed of basanite, supporting limestone. It is called *Tavshán Tāghí* (Hare-Mount). Beyond this is a small lake, which, by a mer. alt. of the sun, taken on its northern limits, is in 38° 48' 45" N. It is called *Kópek Göl* (Dog-Lake). The soil now became covered with mesembryanthemum and artemisia. We passed another salt-marsh, nearly dried up, and reached *In-Aví*, a large village, on the side of a valley containing a stream of fresh water flowing into the lake, the western limits of which we had been skirting all day.

21st.—From *In-Aví* our route lay in an easterly direction along the valley of the rivulet; marshy, with abundance of plover and water-birds, amid which were flocks of herons. At a distance of about 6 miles, having left the valley and turned over a plain of gypsum, in part cultivated, we came to a lake called *Murád Şóhó Gölí*,* about 8 miles in length by 4 in width. The shores of this lake, at its northern end, unlike the Great Salt Lake, were steep, the waters having exposed beds of gypsum beneath the superincumbent lacustrine deposits. To the west of this lake were some remarkable hills of volcanic rock, which had constituted useful points for bearings from *Kóch Hisár*, and all along the northern and western sides of the lake. The first of these was called *Bóz Tāgh* (Ice-Mount), a more or less rounded hill,

* This is evidently a misnomer. Perhaps it should be *Murád Şú Gölü* (*Murád-River Lake*).—F.S.

immediately south of In-Aví, composed of basanite covering indurated limestone: the second was an isolated mass of basanite, of remarkable appearance, as it rises out of a level plain of lacustrine deposits. It is called *Kará Tepeh* (Black-Hill); and there are said to be ruins upon it. The two others similarly circumstanced: one of them is a double hill; the other a low conical volcanic mound.

Continuing along the banks of the *Murád Sôhó Gólí*, where the plains were very flowery, and where we obtained two species of jerboa, besides a beautiful phalaropus, we came to a river flowing north into the great Salt Lake. This river had its origin in an extensive adjacent marsh to the south, part of the waters of which flow into the *Murád Sôhó Gól*, and part to the *Kóch Hişár* lake. At this point is a very antique aqueduct, the masonry of which is completely hid by a thick incrustation of travertino, deposited, as on the aqueduct of Daphne, near Antioch, by the waters trickling from the artificial canal. This duct, which crossed the river just noticed, is called from that circumstance *Qayá Bôgház* (Cliff-Passage).

Nine miles from hence, continuing in a S. S. E. direction, along an almost perfect level, we passed *Túsun U'yúk* (Peace-Mound), an artificial mound, that once supported a large edifice; the ruins of a former considerable town are almost circularly disposed around this central mound. These ruins are now, with the exception of a few fragments of columns, level with the ground; so we discovered nothing of interest, nor any inscriptions: by position, however, the site may, with every probability, be connected with *Congusta* or *Congustus* of the tables: 4 or 5 miles from this, travelling over a marsh, which was in part crossed by a stone causeway, we arrived at the *Qaşabah* of *Iskıl*, built upon the same great level ground; but as the lake contains no coralliferous or molluscou animals, it would be difficult to say positively, if it were not for the nature of the soil and the configuration of the land, that this great plain south of the lake has been formed by the gradual diminution of the waters of the latter.

Iskıl contains about 400 houses of Mohammedans. The houses are much scattered, the streets consequently wide; there is no daily market, and a general appearance of neglect, as if the town belonged to the shepherds of the large flocks which pasture over the lacustrine plain, who have no villages to seek refuge in, but now and then distant enclosures, like *cárávánseráis*, for the cattle.

We made but a short journey over the same plain to *Sultán Khán*. About 4 miles from *Iskıl* we found some interesting ruins (*U'yúk Bowát*), consisting of a mound 60 feet high, for the

most part artificial, numerous Byzantine remnants in a very broken condition, and some antique grottoes in cretaceous marl, here covered by limestone conglomerates. A modern mesjid, built chiefly of the hewn stone fragments of former edifices, had succeeded to older ruins, but was itself now also a ruin. Close by the town, which may probably be the Perta or Petra of the Itineraries (found also in Ptolemy), there flowed a fine stream of water, which lost itself in marshes immediately beyond it. These marshes form in the line we were now taking, the south-westerly limit of the lake; but they are so far dried up in autumn as to allow of a cross road from Iskıl to Aḡ-Serāi.

Sultán Khán (the Sultan's khán), is about 10 miles from Iskıl; and by the sun's mer. in $38^{\circ} 15' N$. It is so named from a khán or caravanserāi which adorns this otherwise poverty-stricken village. This khán is divided into two parts, the more easterly is not very lofty but wide, and ornamented by a gateway of rich Saracenic workmanship. This portion is 70 yards long by 64 in width; the westerly part is in a better state of repair, and is very lofty. It is 61 yards long, by 42 in width. I annex a translation of its Arabic inscription by Mr. Rassám:—

"The exalted Sultán 'Aláu-d-dín, great king of kings, master of the necks of nations, lord of the kings of Arabia and Persia, sultán of the territories of God, guardian of the servants of God; 'Aláu-dunyá wa-d-dín, Abú-l Fat-h, commander of the faithful, ordered the building of this blessed khán, in the month of Rejeb, in the year 662" (A.D. 1264).*

23rd.—In pursuing our road from Sultán Khán to Aḡ-Serāi, in an E.N.E. direction, we had at starting to go round the sources of a rivulet originating from six different springs, and thence continued our progress over a marshy land. All that part of the plain which extends between the lake and the gradual rise of land towards the foot of the Hasan Tāgh, is lower than the more continuous and extensive portion of the same plain, lying between the lake and the Karájah Tāgh. The plain we were now traversing is diversified by two ruined kháns, a long causeway of stone, and numerous wells approached by paved roads upon an inclined

* Not the Khalif, but one of the Seljukian Sultáns of Kóniyah. The princes of that dynasty adopted many of the titles here given, as may be seen on their coins in Adler (Museum Cusico-Borgianum, vol. ii. p. 72) and Marsden (Numismatica Orientalia); and they probably assumed the title of "Commander of the Faithful" (Amir-i-Múminin) after the extinction of the chalıfite, on the murder of Mosta'sim bi-Uah, by order of Hulákú, A.H. 656 (A.D. 1258): so that according to the date here given, could we trust the historian Ahmed el Dimeshkí, quoted by Adler (p. 74), the prince here named was eldest son and successor of Ghayyáthu-d-dín, the tenth sultan of Kóniyah, who died A. H. 654; but other historians give no such successor to that sultan; and according to Adler, El Dimeshkí's statement is disproved by coins still extant: few parts of Asiatic history are, indeed, more in want of elucidation than the chronology of the Seljukian Sultáns of Róm.—F. S.

plane. At $3\frac{1}{2}$ miles from Ak-Serâi we crossed the river of Ulur İrmâk by a stone bridge: it flows into the Bayâz Sû or river of Ak-Serâi, a few miles below.

Before we leave the region of the Salt Lake and enter upon the rocky districts of Garsauritis, it may be allowable to make one or two brief observations. The Palus Tattæus of the ancients is called at the present day, by those resident in the neighbourhood, Tûz Chôlî (the Salt-Desert), as it is almost entirely dry in summer; but it also sometimes called Tûz Gôlî (the Salt Lake), Ajî Gôl (Bitter Lake), or Kóch Hîşâr Gôlî (Lake of Kóch Hîşâr), Tûzlah (Saltern, or Salt-Work): Memliḥah and Mellâḥah in Arabic, signify the same thing.

The eastern banks of the lake are tenanted by pastoral Turkomâns of quiet habits, but the western side is inhabited by Kurds, who are constantly giving trouble to the government by their predatory habits. It was most likely, on this account, that Mr. W. I. Hamilton could not find any one to take him to the lake from Afîyûn Karâ-Hîşâr, Ak-Shehr, I'ghûn, or even Kóniyah; for fresh water, according to every report, is never wanting to the west of the lake. We met with the same difficulty on approaching the lake from the N.W.; but once on its banks, we were resolute in following the yet unexplored western line, in doing which we approached near to the southern declivities of Karâjah Tâgh, the northern front of which we had also visited in our excursion through Hâimâneh. There was, therefore, no real difficulty in completing the north and south lines through this part of central Asia Minor, as the distance previously unexplored required only a journey of 4 hours.

The lake which, as before mentioned, is almost dried up in summer, was nearly at its greatest extent at the period of our visit, and consequently well adapted for an exploratory reconnaissance. To the N., N.E., and N.W., where it receives no large tributaries, it is entirely dry in summer, and its limits are well defined by the absence of vegetation, and the coating of salt and mud; but in its south-western and southern limits, where it receives several large streams of fresh water, which are marked on the map, the plain being, as has been mentioned, very level, far beyond the limits of the lake, the tributary waters spread themselves out and convert the whole land into extensive marshes; so that, between marsh in winter, and salt desert in summer, it is difficult to find out what may be considered as the southern boundary. But as the line of our route extended to pretty nearly the point where all the southerly rivers, except the Bayâz Sû, spread out into marshes, and that line is again connected with Kóch-Hîşâr, by the labours of Mr. W. I. Hamilton, as good an idea of the real extent of a lake constantly varying in the details

of its form, may be obtained, as if its exact limits to the south had been astronomically fixed.

A series of barometrical observations gave for the mean height of the lake above the sea, 2500 ft. The elevation of many places around not also much exceeding it: Kóch-Hişár, 2836 ft.; Kólú-Köi, 2856; U'zúnler, 2778. In Áví, 2924 ft.; Sultán Khán, 2908.

The lake contains no fish, nor mulluscos or conchiferous animals; its waters and its banks are therefore frequented by few aquatic birds. Although constantly on the look out, we cannot say that we ever saw one bird on its bosom, though the story of birds not being able to dip their wings in the water, is evidently fabulous. The state of its saturation is, however, very great, for salt is collected at almost all seasons from the bottom of the lake, and washed in its water without any sensible loss by the process.

24th.—Ak-Seräi has been fixed by Mr. W. I. Hamilton in 38° 20' N. lat. The weather did not allow of our taking any observations there. The town contains 800 Mohammedan, and 10 Armenian houses. It derives its chief interest from its numerous Saracenic remains, some of which are of great beauty. It was evidently a considerable town, and a place of opulence under the Arabs, probably at the time when so much care was bestowed upon the great road passing by Sultán Khán, no doubt a continuation or branch of that given by Idrísí, as the high road from Baghdád through Malátiyah to Kaïsariyah, thence to Kóniyah. Ak-Seräi is also supposed to be a more ancient site, and has been identified with Archelais, or Archelais Colonia, a colony of the Emperor Claudius, which, in the Antonine Itinerary, is placed at 149 m.p. from Ancyra; and in that to Jerusalem, at 162. The known latitudes of Ancyra and of Ak-Seräi, make the actual distance correspond most nearly with that given by the Jerusalem Itinerary.

The greatest difficulty connected with this question is, that Pliny (lib. vi. c. 3.) places Archelais upon the Halys, in consequence of which, supposing that the river of Ak-Seräi might have once flowed through the lake into the Halys, we particularly examined its northern limits in order to determine that point, and can safely affirm that there does not appear to have been any probability, even if the level of the lake were much higher than at present, of there ever having been a communication between it and the Halys. The insulation of the Bayáz Sú, and the non-existence of "a southern branch of the Halys," are important facts in the geography of Asia Minor.

The next object, which we proposed to ourselves on leaving the great Salt Lake, was to follow in part the great road from Phrygia, through Lycaonia, by the capital of Cappadocia; and it is to be

remarked, that in discussing the route in the Theodosian table from Amorium to Tyana, all commentators have agreed in supposing it made a bend to the south, for had it been straight, it would have passed through Archelais; but, as it is, Rennell brings it 13 miles to the southward of it, and Col. Leake follows a similar line. The position of the ruined towns, which we were led to believe might have been the sites of Congustus and Perta, left us only in doubt as to the continuation of the road to the south of Hasan Tâgh, in the line of the present road from Sultân Khân; but by taking the cross road given by Strabo, from Ephesus to Tomisa, into the account, and considering that the two, which must have crossed each other, probably met also in one or more sites common to both; and those sites, the Garsabora of the Tables, and Garsaura of Strabo, and the Coropassus of the Tables, and Nazianzus of the Anton. Itinerary, are to be sought for in the aggregation of mines and early Christian remains, existing in the secluded valleys and rocky ravines at the north-eastern foot of Hasan Tâgh, where Mr. Hamilton visited Virân-Shehr—we now went in search of these, Gelvedereh, Belistermah, and Sevrî-Hişâr.

The hills above Ak-Serâi are composed of red and brown sandstone, with gypsum; but in continuing up the course of the Bayâz Şû, these are soon succeeded by volcanic rocks and sand, which give a new feature to the aspect of the country. Level uplands terminate in abrupt cliffs over deep ravines, with shingly and sandy declivities which are generally covered with the ruins of rocks fallen from above.

Some villages, as Demirji Kôî and Selmâdâr, the houses of which are a mere aggregation of loose stones, are so curiously placed, under such circumstances, on the declivity of hills amid fallen rocks, that at a little distance it is difficult to distinguish the one from the other. After a ride of six hours in a S.E. direction, through a country of this description, we approached Gelvedereh by a narrow valley, the cliffs on each side of which are burrowed by grottoes, often variously ornamented; and the bottom of the valley is full of ruins. The modern village of Gelvedereh is exactly in a similar position, only that the inhabitants appear to have kept recoiling from the more open ravines into the more unapproachable recesses that a number of these offered to their choice. At this point they have built themselves a handsome new church; and the caves and grottoes, which continue without interruption for a distance of from one to two miles on the approach to the village, are here fronted up with stone-work, so that the houses rise in terraces, one above the other, and occupy the head of two separate ravines. The grottoes are similar to those met with in other places, as Yârápasón, Tátlar, &c., but rather more ornamental. We did not perceive any ruins indica-

tive of so great antiquity as those found by Mr. Hamilton at the neighbouring site of Virán-Shehr, 3 hours from hence, S.W. The first site entered upon in this day's ride is at present called Belistermah.

Leaving Gelvedereh, we ascended, in a storm of wind and rain, the rude rocks of Sevrí Hışar, near the crest of which is a curious conical hill, bearing the ruins of an ancient edifice—whence the name of the mountain. Below this are cliffs of sand and tufa, with a few caves and a small Greek village, bearing the same name as the mountain. From this valley we gained another, more isolated, and surrounded by barren, rocky, volcanic hills, in the midst of which are the ruins of a pretty modern Greek church. Our guide did not know the way over the district we had now entered upon, and we were not long in losing our track, which we did not regain till, after travelling $2\frac{1}{2}$ hours, we came upon hills which commanded the great plain of Mál ákób.* We had previously been passing through ravines, and amid hills generally covered with wood, and composed of tufa, conglomerate, and obsidian. It rained incessantly as we travelled over the plain, which is cultivated, and abounds with villages, but is ill supplied with water, being at an elevation of 4138 ft. In the centre is the large village of Mál ákób, another curious Greek colony or congregation; it contains 200 houses of Greeks, and 70 of Mohammedans. The men trade at Constantinople, the women cultivate their gardens. Their dress is peculiar. Water is obtained with labour from deep wells, of which there are several, surrounded by stone enclosures, each of which belongs to a different family. There is one modern church, in part built of the ruins of an older edifice, and dedicated to St. Theodore; another in ruins, dedicated to St. Michael; and a pretty chapel, in the same condition, to "All Souls." There are also fragments of another church, where we copied from an altar-piece, the only distinct and consecutive letters which bore any appearance of antiquity—

ΑΧΑΙΘΕΑΧΑΤΩΒ
ΠΑΤΡΙΑΤΑΘΩ

The houses are all built upon the same plan, the frame-work being formed by three or four well-turned semicircular arches, and the interval filled up with rubble and masonry. They are mostly excavated from the mountain to keep off the summer heats. The village is built upon a level plain of volcanic sand, which in summer is drifted about by every breeze, to the great inconvenience of the inhabitants, who also, to protect their cattle and

* An Armenian name: Mál-A'kób, for Már-Yákób: St. James—F. S.

fodder, have paved circular spaces in front of their houses, giving to the place a cleanly appearance. The gardens are at the foot of some hills about 2 miles N.E. of the village, where there is also a dome-shaped mountain, called Chevri, upon the summit of which an annual festival is kept at Easter.

Passing over the Chevri hills, we came, after a $1\frac{1}{2}$ hour's ride N.E., to Kaşar Kōi, a village with a ruined church, a rather pretty káravánsērāi, and other relics of former times. It has now only five houses belonging to Greeks, and about 20 to Mohammedans. By its name and position, this place might be identified with Dio-Cæsarea. Three miles to the right is a conical hill, bearing the ruins of a church or monastery, called Charink Kilísá.* About 5 miles from Kaşar Kōi, passing the ruins of a small Greek village, with remains of a church, a few caves and houses with pavements in front of them, we descended in a southerly direction, by a picturesque pass, into the valley of Sôwánlí† Dereh, described by Mr. W. I. Hamilton, as Soandum. The pass we descended by, was hewn out of the solid rock, below which the valley opened most picturesquely before us; and it is, as Mr. Hamilton observes, a truly remarkable place. The cliffs at the head of the valley are not above 60 or 80 ft. high, and the declivities below, about 100 ft.; but both become loftier farther down. The valley follows a rather winding direction; and throughout its whole length, from the top to the base of the hill of Cybistra, are caves or grottoes more or less numerous. Tired with a continued rain and a drenching every day, we stopped at O'rtah Kōi (Mid-ville), a cleanly Greek village near the middle of the valley.

The morning of our arrival at Kará-Ĥisár‡ was fine, and a meridian altitude of the sun gave for its position $38^{\circ} 21' 20''$. Soon after our arrival, Mr. Russell and I started for Zingibár Castle. It rained all the evening, and also while we were taking the measurements, which occupied no small time in so large and so irregular a building; but we were anxious to compare it with the details of the ancient accounts of Cybistra and Nora.

The castle of Kará-Ĥisár, or of Zingibár, one of the most remarkable ruins in these districts, stands on the loftiest of two volcanic cones belonging to a hill which forms nearly the most southern point of a low range, extending northwards to Injeh-Şú, and southwards in low hills towards 'Alí Tágh. These hills are merely detached from the central upland of Garsauritis, and cannot be said, as Rennell supposed (No. 2, pp. 172, 194), to

* For Chiring Kilísá, *i. e.* Bell-Church.—F. S.

† For Sôghán, Onion-Ville.—F. S.

‡ Devehli Kará Ĥisár; *i. e.* Camel Black Castle.—F. S.

connect the Lycaonian hills (*Karajah Tágh*) with Anti-Taurus (*Alí Tágh*), or to be a continuation of the Lycaonian hills eastwards, and of Anti-Taurus westwards.

Cybistra has been identified by Col. Leake and others with *Kará Hisár*, but by Rennell with a place called Costere.* It is chiefly remarkable on account of its having been the military station of Cicero, while watching the motions of the Parthian army, which threatened Cilicia and Cappadocia from the side of Syria. Strabo places Cybistra 300 stadia from *Cæsarea*, this, upon the scale proposed by Colonel Leake,† would amount to about 34½ British miles. There is some difficulty in ascertaining what distance is meant in the Theodosian Tables: but this would correspond very well. The distance of *Kará-Hisár* from *Cæsarea* by the *Injeh Sú* (*Sadacora*), being estimated at 12 hours or 36 British miles.

The castle of *Nora* or *Neroassus*, appears on a variety of grounds, to be the same as Cybistra. Plutarch describes it as situated on the confines of Cappadocia and Lycaonia, while Rennell objects that this castle is not on the common boundary of the provinces, because the district of Tyana intervenes, which is not the case, the district of Tyana being altogether to the south of *Kará-Hisár*. Rennell says it consisted of distinct forts near each other, but Plutarch only mentions the great inconvenience to the garrison, from the narrowness of the space in which they were confined, enclosed as it was with small houses. Diodorus (lib. xviii. c. 41 Ed. Wesseling) describes it also as a single castle, situate on a high rock and very strong. Plutarch gives to it a circuit of not more than 2 furlongs (440 yards) according to the translators, 250 paces. And Diodorus says, only 2 stadia, or 404 British yards, in circumference. The superficial content of the interior castle, reduced to a figure of an equal periphery, is 11 British yards. The plan generally agrees with Plutarch's description, but is so heterogenous, that it is to be regretted that it is lost with the others.

It is to be remarked that this castle commanded the pass by which the great road from *Cæsarea* led by *Soandum*, to *Iconium*, as also that which continued southward to Tyana and Cilicia.

On leaving *Garsauritis* for the district of *Cæsarea*, the country is too interesting, and has been too little the object of recent descriptions to be passed without remark. *Garsauritis* is to be viewed as eminently a rocky country; *Morimene* has ranges of mountains; Central Cappadocia is similarly situated, as is also *Melitene*; but *Garsauritis* is remarkable for its wild and stony

* *Kósterch* or *Gósterch*.—*Jeh. Numd.* i. 620.

† *Journal*, vol. ix. p. i.

districts, secluded glens and ravines, and often picturesque outline; but it has also fertile plains and still more productive declivities. Wood is generally wanting: there is some on the *Sevri-Hişár* hills, but for fuel, dry dung, charcoal, and the roots of *astragalus tragacanthus* are generally used. Whether grants were made in modern times to the Greeks of this unpromising land, to render it tributary to their industry, whether by apprehension or a morose love of seclusion, they willingly retired to the rocks and caves of this singular country, or whether they have remained around the ancient abodes of their forefathers, the present servile and ignorant race can tell you nothing. Marrying early, the men repair to Constantinople and Smyrna to trade, while to the women is left the care of the house, the flock, and the vineyard: an evil follows from this which once attracted the legislative attention of *Lycurgus*; the females become masculine and full of violent passions, and when the men return to their homes, they are often very far from finding an echo to the subdued tones and more polished manners which they had learnt to appreciate in the civilised world. The priests who remain at home, might be supposed to have some influence, but they are often old and unserviceable and even sometimes disrespected.

Garsaura, or *Garsauritis*, it is well known, formed one of the divisions of Cappadocia, and was bounded to the south by *Tyanitis* and *Lycaonia*; to the west by *Phrygia* (Pliny, lib. vi. c. 3), and the district of *Tatta palus*, or the *Tattæan* marsh (Strabo, p. 568) which lay along the common boundary of *Phrygia*, *Galatia*, and *Cappadocia* (Rennell, vol. ii. p. 157); to the north by the *Halys* and *Morimene*, and to the east by the district of *Argæus* and the *Cappadocian Cilicia*. It thus constitutes a separate district, equally remarkable with respect to its natural features and its remains of art, its configuration, its structure, its ruins, its caves, and its population.

The north eastern part of *Garsauritis* is particularly characterised by its conical volcanic mountains, its streams of lava, and basanitic cliffs, but above all, by its naked volcanic tufa and tephritic rent into deep and narrow glens, studded with cones and pinnacles, also the effect of disintegration, and often presenting an infinite variety of singular forms; and lastly, cliffs and precipices excavated almost wherever such present themselves, with vast multitudes of grottoes that have served, or serve still, for dwellings, churches, chapels, monasteries, or tombs.

The N.W. portion of *Garsauritis* derives its features, which are less singular and of a more inhospitable character, from a long range of sienitic mountains; rocky and picturesque in the *Tásh Teller*; undulating in the *Şári Karamán*; stony and wild, again,

at Chámúrlí; bold but rocky, with castellated remains in the Kójah Tāgh; abrupt and truncated cones at Tóklú Kal'eh; grouped and mountainous in the Sári-búlák Tāgh, and there the sienites meet the mountains of Morimene (Báránli Tāgh) and enclose the Kizil Irmák, or Halys, in deep and narrow valleys and ravines.

Central Garsauritis is characterised by the Aká-juḵ mountain, a tame saddle back, not very lofty, but visible from all Morimene. Connected with it are many offsets, in the deep valleys of which are the lakes called Delvehlí, Tursupú, and others. This district is tenanted by the Akájuḵ Kurds, who possess a tolerable reputation for good behaviour.

The Tattæa or Tatta Palus, is acknowledged to have been in ancient Phrygia (Strabo, p. 568), extending through the south-eastern part to Taurus, that is the plain of Perta, extending to Karájah and Hasan Tāgh, was considered as bounding, as well as its northern part, on Galatia, and formed part of the kingdom made up by Antony for Amyntas. The S.W. quarter of Garsauritis, as thus limited, is pre-eminently distinguished from the other quarters by the lofty summit of Hasan Tāgh, rising upwards of 8000 feet above the level of the sea. This mountain has a nearly conical form, and is said to preserve patches of snow throughout the year. Its north-western base is bounded by the plain of the lake; to the S.W. a low undulating country connects it with the Karájah Tāgh, while to the E. it is prolonged by one or two cones, and then a lofty chain of hills, which shut up Garsauritis to the S., but do not extend as far as that part of Taurus called 'Alí Tāgh, and from which they are separated by the uneven territory of Tyanitis.

Hasan Tāgh is in every direction a picturesque and striking mountain, but there is still more interest connected with the curious glens and rocky ravines at its base, than with its own acclivities or heights. Of volcanic origin, excepting the sandstone and gypsum deposits of Ak-Seráí, almost immediately succeeded by trachytes to the east, it has spread over the whole country a considerable, although local formation of trachyte, claystone, and clinkstone,* which generally reposes upon tufa or tephrine.

These rocks influence the configuration of the whole of the south-western quarter; the compact uniform products of effusion, are spread as it were, in vast beds over the rocks of aggregation, giving rise to plains or slightly undulating lands, with sometimes stair-like terraces; but where there is water, as along the courses of rivers, the detrital rocks of a friable nature are carried away,

* Although I use trachyte, claystone, &c., I am far from admitting the correctness of these terms.

while the more compact rocks are tumbled down, leaving vertical cliffs above and acclivities of sand below, with scattered masses of rock, amid which the habitations of men are so intermingled, that it is sometime before the traveller can distinguish them from the ruins of the cliff. The face of the rock above, as well as the declivities of sand below, when not covered with fragments, are in many places studded with numerous grottoes.

On approaching the foot of *Hasan Tâgh* and the head of the waters, the tributary streams are more numerous, and the ravines in consequence more frequent, sometimes as many as three or four are to be observed meeting at short distances, and all with excavated cliffs and innumerable nest-like mansions of the living and the dead.

But at other times lavas (tephrines) mingle themselves with domites, leucostines, basanites, and basanitic conglomerates, forming ranges of hills as in *Sevri-Hişâr*: and then again, the rude domites advance upon the lower territory in naked rocky masses like a true granitic country, surrounding little isolated basins amid which are again found the ruins of habitations, and of stone churches, belonging to the same race of men.

The modern Greeks are not, however, confined to these wild spots, so difficult of access and so rarely inviting to the eye. The small town of *Mál A'kób* has been described as situated in the midst of a fertile plain—*Kaïsar Kói* or *Dió-Cæsarea* is again in a rocky district. The south-eastern quarter of *Garsauritis* partakes indeed of both features, grassy uplands with tepehs or solitary hills, sometimes with old churches on their summits, as at *Charink-Kilisá*, and cultivated plains, with little water or wood, out of which also rise bold, rounded, and naked hills of lucostine, like the phonolitic domes in Scotland and France, and the seat of superstition, as in the *Chevri* and other hills; and lastly, on the confines of the district, we find at *Şówánlí Dereh* and places adjacent to it, the same deep cut valleys with the same repetition of cliff and cave scenery as awaken the traveller's interest and fix his attention in the northern and southern portions of this very remarkable district.

28th.—We started along the plain of *Kará-Hişâr*,* where vegetation and scenery were both monotonous. The rivulet of *Kará-Hişâr* flows onwards in winter, as it did at the present moment, to the most southerly of the lakes that occupy the plain of *Kará-Hişâr*, which become mere marshes in summer. At that time the quantity of water brought down from the *Şówánlí Dereh* by *Kará-Hişâr* is so small as scarcely to suffice for the

* *Devehlí Kará Hisâr*.—J. N., p. 620.

purposes of irrigation. The plain of Karâ-Hisâr, according to our barometers, has an elevation of 3420 feet, and does not send out a stream in any direction. A range of hills stretched along our left, in a direction N.N.E. At their foot were caves with ruins of a Christian village. On the plain, 3 hours from Karâ-Hisâr, there is a ruinous khân. The foot of Arjîsh Tâgh had hitherto been occupied by hills of volcanic sand, tufa, and conglomerate, which terminated in a well-defined line on the plain; but immediately beyond what is now the northern lake, a considerable stream of basanitic lava had flowed between hills of sand, &c., expanding towards the base of the mountain, and advancing upon the plain in a northerly direction, extending to the limits of the Great Sâzlik or Marsh, beyond Injeh Sû. The low cliffs formed by these scoriaceous and lava-basanites are partitioned out by the industrious Christians for the cultivation of the yellow berry (*Rhamnus infectorius*).

Injeh Sû (Slender water) is a small town, remarkably situated in a ravine of volcanic conglomerate, which is traversed by the rivulet that gives its name to the town; Injeh Sû (Narrow River), not Injû Sû (Pearl River). The town is shut up at its N.E. extremity by a handsome khân, the walls of which extend from one side of the ravine to the other. The ravine expands at its upper part, and opens into another, having a north-easterly direction. Both the declivities and base are occupied by dwellings: the Mohammedans and Greeks having each about 750 houses. There are also many grottoes. The Christians have two churches, one of which makes a fair appearance on the hill side. The houses are also for the most part good and cleanly. Injeh Sû is governed by a Mutesellim, sent from Constantinople; the produce of the taxes of the town being devoted to the maintenance of the Jâmi', called Maḥmûdiyyah, in the Mohammedian capital. It was indebted also to the Sultân, when Karâ Mustafâ was Vezir, for its Khân and Jâmi'.

29th—Our route to Kaïsariyah lay to the E.N.E., along the borders of the Great Sâzlik or Marsh, alternately at the foot of black rocks and cliffs of lava, and occasionally by stony unpleasant paths over the same rude material. Mr. W. I. Hamilton has remarked upon the absence of rivulets in the declivities of Arjîsh, the melted snow being almost immediately absorbed by the porous volcanic rocks, but on this side it reappears in abundant springs, more or less circularly disposed in little rock-enclosed valleys, where they unite, not to form rivulets, but to expand over the great marsh previously alluded to. Beyond these basanitic rocks with frequent springs, we came to a more open valley, everywhere covered with gardens, and making

a short ascent over the side of U'lân-lí mountain, we passed by what was apparently a great subsidence in the rock, called Kurk Kurk; and thence descended upon the plain of Kaïsariyah, passing, before we reached the town, a long peninsulated hill, called Besh Tepeh (Five Hills), at the extremity of which is a ruined castellated enclosure, and upon which is said to have been built a portion of the ancient town of Cæsarea.

May 1st—8th.—Kaïsariyah is a town of great antiquity. As Mazaca, it was the capital of Cappadocia, at the time that the Greeks knew it only from the reports of casual travellers. In the time of the early Roman emperors it took the name of Cæsarea, but with the addition of its original name. Being situated at the foot of Mount Argæus, it has also been denominated from that mountain. Its modern name is a mere corruption of the ancient one; at present it is vulgarly abridged into Kaïsar. It appears once to have been a large and populous city. After the captivity of the unfortunate Valerian (immortalised on the rocks of Shápúr), Demosthenes, a Roman, not so much as Gibbon, remarks, by the commission of the emperor, as in the voluntary defence of his country, resisted in Cæsarea the progress of the Persian arms. The town was subjected to a nearly general massacre, and is said at that time to have contained 400,000 inhabitants. The modern city, which is for the most part in a very ruinous condition, contains 12,176 Mohammedans, 5237 Armenians, and 1109 Greeks. Total, 18,522 persons. This was the Ayán's report to Mr. Rassám.

During our stay at Kaïsariyah the weather presented some very fine intervals, which enabled us to obtain a series of Lunar Observations, which gives its longitude $35^{\circ} 45'$ E. Its latitude by a number of mer. alt. of sun and several stars is $38^{\circ} 41' 40''$. We also laid down a plan of the city and of its ruins, which chiefly belong to the Mohammedan era.

The attention of the expedition had been particularly called to the investigation of the hydrography of the immediate neighbourhood of Kaïsariyah: whatever may still be the difficulties that will hang over the statements of the ancients upon this subject, nothing can be more certain than that no rivulet or river flows from that neighbourhood to that called by the Turks Tokhmah Sú, the sources of which, to put the question beyond all doubt, we investigated in a subsequent part of our travels.

There is a rivulet which flows from the northern foot of Arjish, and which, sweeping round 'Alí Tágh, passes by the populous village of Tágh Kazi, and is thence, at most seasons of the year, lost in irrigation; at others it is a tributary to the Šárimśák. There is also another small tributary to the same river from

Manju-li. Mr. W. I. Hamilton ascertained, in going round Arjish on the east side, that there are no traces of any stream or waters except such as flow N.W. or S.W. The Şarimsák river, which we traced nearly to its sources, flows from the village of the same name, in a westerly direction across the great plain of Kaïsariyah, where, at a distance of 2956 yards from the city, it is 8 yards in width by 2 feet in depth. It loses itself in the Sázlık or Great Marsh, where it is said to be joined by the Kará Şu, and to flow by Bógház Kóprı to the Kızıl Irmák.* This united stream is what Messrs. Hamilton, Texier and Callier identify with the Melas of Strabo (xii. p. 538), after the submersion of the lands of the Galatians.

The noble mountain of Arjish, the ancient Argæus, vulgarly called Ardish or Arjeh, is now clearly proved to be the loftiest peak in Asia Minor. Almost perpetually involved in clouds, during our stay at Kaïsariyah, we had only an occasional glance of its extreme summit: and the season of the year in which the snow line descends to within a few hundred feet of the plain, put all attempts at an ascent out of the question, even if, after Mr. Hamilton's labours, it had been deemed advisable to incur the delay and expense entailed by such an undertaking. The structure of this fine mountain, which, like Hasan Tagh, is principally of volcanic origin, and belongs to a comparatively modern epoch of activity, will be best described by the before-mentioned traveller; but the whole, in a general point of view, presents an interesting accumulation of conical, rounded, and saddle-backed hills, chiefly composed of grey friable lavas, with a basaltic base. The manner in which these various formations are dispersed about the declivities, is rather remarkable, and always very distinct.

The summit of Arjish bears from the Armenian church in Kaïsariyah S. 17° 30' W.; the variation of the compass at the same place was 10° 30' westerly, hence the true bearing of the summit is S. 7° W. Its summit appears to be about 10 miles from its average base, considering it for the moment to be isolated on every side, which it is not to the S.E. This would give a mean area for the whole mountain of 300 miles, and a circumference of 60. Its elevation, as determined by Mr. Hamilton, is 12,809 feet. The report that both the Euxine and the Mediterranean may be descried from its summit, given by Strabo (p. 538), must be received with caution, since its distance from the Euxine is 170 British miles, and from the Mediterranean 110 geographical

* Baron Wincke, a Prussian staff officer, who accompanied the unfortunate expedition of Zaid MoHAMMED Páshá, also verified this fact. He further states the marsh to be divided into two distinct parts to the N.

miles, with ridges of high mountains between both. There is also a tradition that the Romans had a castle on its summit, where Tiberius Cæsar used to sit, which is not deserving of attention, except as probably connected with the adjacent summits of 'Alî Tâgh or U'lânî.

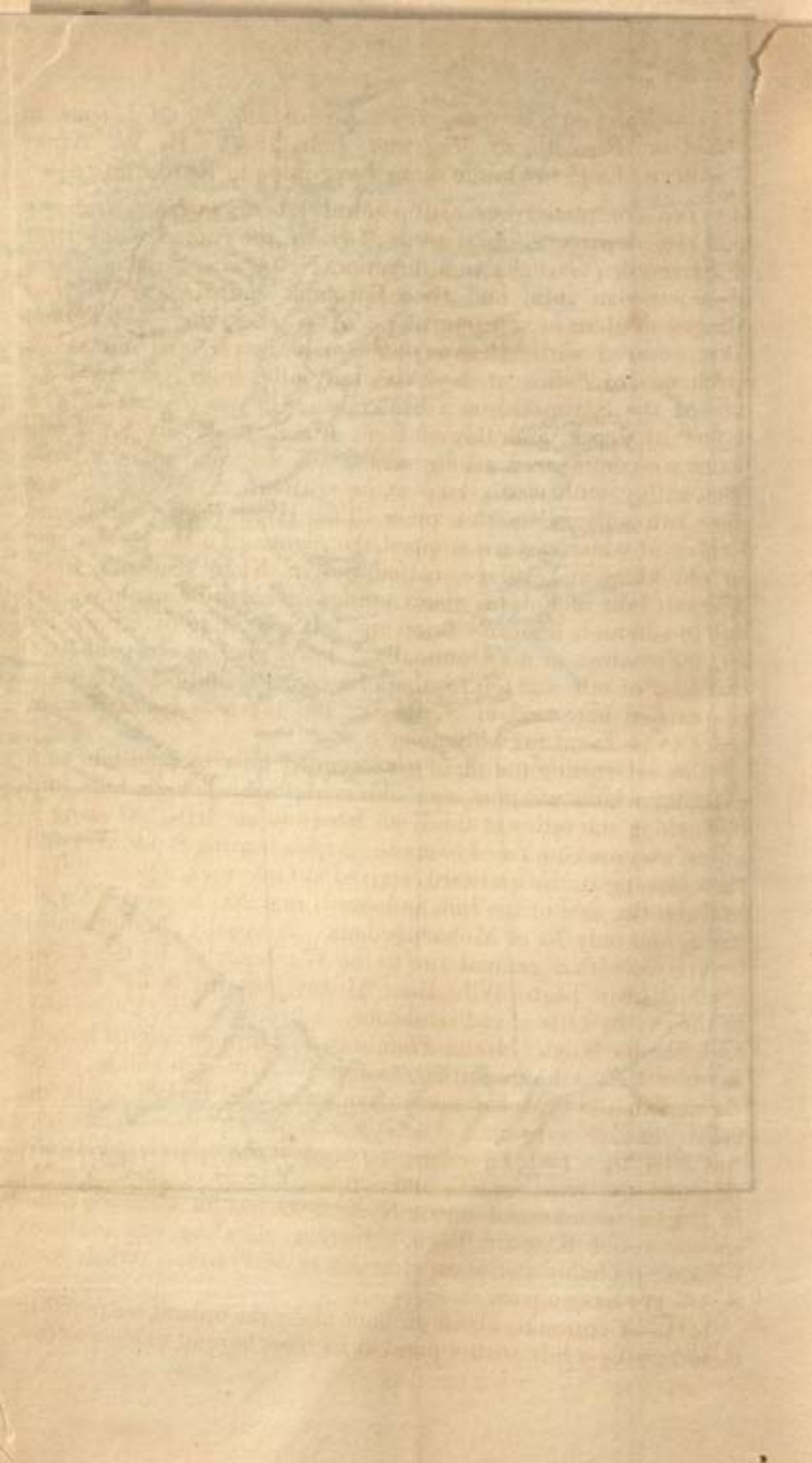
The Armenians have preserved a written chronicle of the earthquake that ravaged Kaïsariyah in August, 1835; but it contains little that is of any interest to the philosophy of these destructive phenomena. It appears that it commenced two hours before sunrise on the morning of Thursday, August 1st, and was accompanied by a loud noise, the shocks being repeated for as much as ten hours from that time. Many minarets and other lofty buildings were thrown down. The record says that there perished as many as 665 persons. The houses thrown down are mentioned rather hyperbolically as beyond enumeration. Several of the neighbouring villages that were built in ravines of crumbling rock, suffered severely. At Tâgh Kâzî 17 houses were destroyed by the fall of a rock. At Manjusun, 3 hours to the west, the loss of houses was also great. A catastrophe of a similar kind which occurred at Beli-Yâzî has been noticed by Mr. Hamilton. I could obtain no satisfactory account of any well-defined swallowing up or subsidences.

There was some discrepancy in the barometrical results obtained by ourselves and by Mr. Hamilton. Ours gave for the elevation of Kaïsariyah above the sea only 3236 feet, Mr. H. placing it at 4200 feet. The boiling point of Robertson's thermometer was 25·8; our barometer stood at 26·314; the thermometer at 59. Cloudy weather.

to illustrate routes of
M^r. AINSWORTH, M^r. BRANT,
M^r. SUTER, &
LORD POLLINGTON.
1840.

The eastern portion of the Mississippi drainage basin
M. A. Robinson, R. J.





VIII.—*Notes on a Journey from Kaïsariyah, by Malâtiyah, to Bir or Bîrehjik, in May and June, 1839.* By W. AINSWORTH, Esq., in charge of an Expedition to Kurdistân.

HAVING completed our astronomical labours at Kaïsariyah, we took our departure, on the 9th May, up the course of the river of Şárimśák (Garlick) in a direction N. 60° E., passing first a Mohammedan ruin, and then Gírlamik and Khurmá-lí, poor villages in glens of volcanic tufa. At 6 miles, there was a small lake, covered with *Alisma plantago* in flower, and numerous specimens of *Fulica atra*. About 13 miles from Kaïsariyah we crossed the Şárimśák, on a bridge where it was 6 yards wide by 2 feet in depth, and flowed from E.S.E. to W. by S. From hence we commenced a long ascent till we came upon a large open valley, with a salt lake at its northern extremity. There were two villages on this plain, Túz Hisár (Salt Castle) and Palás; at which last we stopped the night. To the S. was also an old khán and village, called Sultán Khán (Sultan's Inn). The salt lake of Palás is about 3 miles in length by one in width; but in summer, is nearly dried up. It is said to be farmed for 40,000 piastres, or 400*l.* annually. Forty piastres are paid for a cart-load of salt, and ten for that of a camel or bullock. Gypsum is quarried here and at Şárimśák, and taken to Kaïsariyah in order to be burnt for whitening.

10th.—Crossing the plain we ascended hills of sandstone and gypsum, which we now also observed forming high hills and cliffs along the valley of the Kizil Irmák to our left. At about 8 miles, we crossed hills of basanite, Arjish bearing S. 44° W.; and then turning to the eastward, arrived at Gelermek, a post-village, built on the side of the hill, and containing 200 houses of Armenians, and only 70 of Mohammedans. A marshy plain extended before us, with a gradual rise to the W., bounded by the snow-clad Khanzír Tágh (Wild Boar Mount), bearing S. 32° E., and to the N. by hills of red sandstone, named Şárichik (Yellowish), and Shema Tágh (Mount Flambeau). Having changed horses, we travelled 3 hours further, to a small Armenian village, of 26 Armenian and 5 Mohammedan houses, called Insánlí, secluded amid cliffs of gypsum. The approximate elevation of this spot was 3980 feet; and the sedimentary formations extending between this and the Kizil Irmák, and forming a band of about 5 miles in thickness, averaged upwards of 4000 feet in elevation; the snow-covered Khanzír Tágh, extending all along our southern horizon, probably attains an elevation of 5000 feet. Arjish bore S. 48. W. by compass.

11th.—Continuing about an hour along the upland, we found it closed up by a hill, with a pond at its base, beyond which was the

village of Kayá Buñár (Rock Spring), and below an extensive fertile plain crowded with villages, and watered by many rivulets, the largest of which was the Yánaḵ Chái (Burnt Brook). Passing marshes and rivulets, we came to the village of Chaushun, or Jevshen, and thence arrived at Shár-Kishlá, where we intended (as it was the residence of a governor, and a post village) to change our direction, and proceed, if possible, at once to Virán Shehr, which we expected to find in this neighbourhood. This, however, led to a very long and angry discussion, the governor endeavouring to evade giving us horses off the great road by every means in his power; and we finally succeeded only in getting them to the village of Abasil-lí, situated on the mountains to the S. The waters of the valley of Shár-Kishlá all unite at the same pass, at Topásh, a village and ferry on the Kizil Irmák.

It rained hard on leaving Shár-Kishlá. Our road lay in a S.E. direction, up the course of the Yánaḵ Chái; and in about an hour's time we left the plain to enter among low hills of limestone, along which we continued 3 hours to the village of Abasil-lí, at an elevation of 4680 feet, and near the head of the waters flowing north-westerly to the Kizil Irmák.

12th.—We started early in the morning for the ruins of Virán Shehr. They were said to exist in a wild and rocky district, in which there were no villages, and only wandering Kurds of very bad repute. Our road lay at first S. 30° E., then S. up a ridge lying between Abasil-lí and the plain of Kayá Buñár. This range, called Yel Gadugí, rises about 700 feet above Abasil-lí, or 5400 feet above the sea. Its direction is nearly due E. and W. There were many patches of snow along the coast; and the waters on the northern declivities flow to the Kizil Irmák, and from the southern to the Şaîhún, the ancient Sarus, or river of Adanah.

Having gained the crest of the Yel Gadugí, an extensive plain of chalk was observed stretching before us, about 15 to 20 miles in length, by 10 in width. From the elevation at which we stood, this plain appeared almost as an uniform level, but when travelled over presented slight undulations; and was cut, by the tributaries of the Şaîhún, into ravines, with nearly perpendicular cliffs, or steep declivities, varying from 100 to 200 feet in depth. This plain was bounded to the S. by a range of mountains, now snow-covered, and stretching from E. to W., named the Gök Dil-lí; to the S.W. by a spur of the 'Alí Tágh; to the W. and N.W. by the Khanzír Tágh; to the N. by the Yel Gadugí; and to the E. by the prolongation of the same, and the Kará Tónúz Tágh (Black-Boar Mount), stretching towards Kará Buñár and the easterly source of the Şaîhún.

Descending the Yel Gadugí, and passing by a tepeli with

ruins, called Kúshák-lí U'yúk, we crossed a rivulet 3 yards wide by 2 feet in depth, flowing from E.N.E. to W.S.W., and said to rise 3 hours' distance at a ruin called Cheralik. This stream, called Bázár Sú, is crossed by a one-arched bridge; and 5 minutes before it, to our right, were the ruins of a village called Bázár-yerí, ruined by the Kurds, who have long since arrogated these districts to themselves, and expelled all quietly-disposed inhabitants.

We now began to ascend a short distance, and gained the level of the chalk upland, which we continued traversing for 2 hours, in a direction S. 19° E., when we arrived at the junction of two ravines: one short, from the N.E.; the other long, and containing a stream called Táshlí Gókcheh, 3 yards wide by 1 foot deep, but narrowing below, in marshy ground, to 1 yard in width by 4 feet deep. This stream has one of its sources, it is said, at Kará Buñár, distant from 4 to 5 hours' easterly; and others at a Yáílá called Kaftánjí, 3 hours' distance; and is one of the chief sources of the Şaîhún, according to every account we could obtain from various authorities. We crossed it by a bridge of one arch, and continued our road down its banks, winding from S.W. to W. This is an important point to establish in the hydrography of this part of Asia Minor, because it is evident, that if we had traced up the waters of the Kizil Irmák to their head, and, passing them, had come upon tributaries to the Şaîhún, no river or rivulet that is tributary to the Euphrates can possibly exist to the W. of this, or between Kará Buñár and Arjish Tâgh.

After about an hour's ride, we came to where a large stream of very clear water joined the Táshlí Gókcheh from the S. This was said to be the river of Viran Shehr, and we turned up its banks. The river was 7 yards wide, by 2 or 3 feet in depth, remarkably full of fish, which, apparently from being long undisturbed, had in many cases attained a very large size. The united streams flowed through a glen N. 20° W. We had not pursued our way long up this river, when we came to the ruins of which we were in search, and which we found to consist of an almost square space, pointing nearly to the four points of the compass, traversed by the river, flowing here N. and S., and encompassed by a wall, which extended further on the W. side of the river than on the E., on which side it was also in a more ruinous condition than to the W. The wall, generally about 7 feet in breadth, was defended by several square towers; and was still, although in a ruinous condition, in many places upwards of 20 feet in height. There were also four gateways, corresponding nearly to the four cardinal points. The architecture of the place, the character of the walls and towers, and the newness of the mortar, at once satisfied us that this was not a Roman or a Byzantine relic,

but the ruins of a Saracenic fort, erected for the defence of the road, as we learn from Idrisi (p. 299), which shows this site to correspond with Shohaïr (Little City), placed by Rennell at 57 geographical miles from *Kaisariyah*, and 18 from *Tonosa*. The interior space was the most part rocky, and presented no ruins, except of one or two insignificant buildings, and of a bridge that had been constructed with hewn stones. There was also a similar one in a glen, a little below; and there were some ruins of little interest upon a hill, $\frac{1}{2}$ of a mile N. 75° E. This station, formerly traversed by a great road, had still a horse path carried through it, now little frequented on account of its being unprotected. The river is said to have its origin from a limestone cavern, 2 hours to the S., a circumstance which is rendered highly probable by its crystalline clearness. There are also several fine springs flowing into it, from the rocks in the interior of the fort. It rained during the greater part of the day, with a cold northerly wind; but we were able to return to *Abásil-lí* late in the evening, without having suffered any interruption or annoyance, except from the weather.

13th.—We left *Abásil-lí*, pursuing our way in a north-easterly direction, along the northern foot of the *Yel Gadugí*, and thence down a ravine of sandstone to *Göz O'ghlán*, a small village of twenty houses, where we entered upon the plain of *Túnúz*, 280 feet below *Abásil-lí*, the waters from which are tributary to the *Kızıl Irmák*. *Túnúz*, the ancient *Tonosa*, although formerly a place of some importance, as the point of union of the two roads from *Castabala*, *Comana*, and *Arabissus*, as well as the point of separation of those to *Sebaste* and *Nicopolis*, has not a single remnant of antiquity to boast of. It is still a post-village, 7 hours from *Delikli Tásh*, contains about sixty houses, and a *mesjid* with a minaret. The governor of *Túnúz* is a *Turkomán*, residing near *Yúz-Kát*. The taxes are collected, as in many other places, under the flattering falsehood of their being devoted to the support of the sacred temple at *Mecca*. Sheep and goats are generally sent hence to *Aleppo*, or, as they expressed it, to *'Arabistán*.

14th.—Quitting *Túnúz*, we proceeded through the hills of *Kará Túnúz* by the pass called *Ebijik Bógház*. Having gained the crest, we found the waters all flowing southwards. They were now tributaries of the *Tokhmah Sú*. Upon this basanitic upland was an extensive oblong space, with the ruins of a wall now level with the ground, and a rivulet flowing through the centre, called *Kurklí Yerdí*, and very like the remnants of one of the stations on *Idrisi's* road. To the S.W. was a conical basanite hill, with a ruin called *Kará Ziyárat* (Black Sanctuary). We now descended by a long valley, crossing a double rivulet by two bridges, and then ascended again upon an extensive chalk plain.

To our left was a high group of hills called Teger; to our right a lower group, formed of indurated limestone in curved strata, and called Kõi-Músh. Leaving this plain, we entered upon a valley bordered by cliffs of basanite, with a ruined castle, named Kará-sáki. It was late in the evening when we arrived at Manjú-lík, an Armenian village of fifty houses, with an assumed appearance of poverty, but much real comfort, and probably some agricultural wealth, where there is also a good church.

15th.—We left Manjú-lík by a glen of basanite, in a S.E. direction, which led us upon a plateau of the same rock. To the S.W. was a low district of red sandstone. After about an hour's ride, we gained a valley with a rivulet tributary to the Báliklú Sú (Fishy Water). Before us was a stony chain of limestone hills, which we soon entered by the pass called Şakál Tútán (Beard-stroker), from its requiring patience and resolution to get through it, a man's stroking his beard being expressive of these qualifications among Asiatics. The road wound from S. to S.W., which is also the general direction of the valley. We continued along a narrow ravine for about 5 miles, when the pass suddenly expanded, and was backed by another range of limestone hills, the ruins of a fort being also observable upon a nearly isolated summit to the left. This secluded and rocky district is called Baghrán. We now began to ascend the next range, amid patches of snow and an early but brilliant spring vegetation, consisting of sweet-scented hyacinths, blue anemones, white and yellow squills, and a few ranunculuses and red tulips. These flowers sometimes almost carpeted the rocks, and contrasted brightly with the stony sterility around, where steep and barren cliffs were thrown into deep relief by a clear sunshine, and their shadows darkened by long ridges of snow.

We descended on the other side still over a rocky country, travelling 2 hours till we came to a narrow ravine in chalk and fissile limestone, with flinty slate, but without organic remains, at the end of which we reached the valley of the Tokhmah Sú, with the gardens and picturesque town of Gurun before us.

16th.—Gurun, in lat. $38^{\circ} 42' 10''$, is situated on the southern bank of the river, about 15 miles from its sources, and at an altitude of 3906 feet above the sea. Its position is in a narrow glen of fissile limestone, from 400 to 500 feet deep. The gardens below the town, dispersed along the river's banks, afford much relief from the dreary stony wastes and rocky ridges by which the town is approached on almost every side. To the N. there is a divergent glen, up which the houses are carried for some distance. This glen terminates, on the south-eastern extremity, in a rude cliff of limestone, perforated by numerous caves, which the falling down of the shingly rock have rendered no longer habit-

able. On the top of the cliff, are the remains of an irregular castellated building, of which one face has fallen with the cliff; other two sides meet at an acute angle, and are defended by round and square towers of rude construction. The whole is built of slaty limestone put together without mortar, and with little art; and if the edifice occupies the site of an ancient building, it does not itself belong either to a remote epoch, or to a people among whom the arts were in much regard. It was in vain, also, that we sought over other parts of the town for remains of antiquity. The famous city of Commāna, wherein was a temple of Bellona, with an establishment of 6000 persons, cannot evidently be sought for at Gurun. It is more likely to be the site of Arabissus, 78 M.P. from Sebaste. Gurun is 52 G.M., 74 M.P., from Arcas, Commāna 49 G.M. and 28 M. P. from Tonosa.

The houses of Gurun, although of less pretensions than even those of the small towns of Nev-Shehr or Injeh Sû, are white-washed and clean; and there is much appearance of comfort and prosperity. Its merchants trade with Aleppo, Mar'ash, Sîvâs and Constantinople. Gurun has now, with Derendah, replaced Al-Bostân, which, rendered insecure by its mountain position on a frontier line, has dwindled down to a mere village. The taxes of Gurun belong to the Harameîn, the two sacred mosques at Mecca and Medinah.

17th.—Mr. Russell and I made an excursion to the sources of the Tokhmah Sû. This river enters Gurun, by a northerly curve, through a deep and narrow glen in limestone, called the *Toprak Virân* (Desert Soil), beyond which it is named the *Injeh Sû* (Narrow River). This glen being impassable, we gained the *Injeh Sû* by crossing a rocky ridge of hills called *Khurkhun*, with small patches of snow, and spring flowers, by a path remarkably stony. From a commanding position hence, we observed the valley of the *Injeh Sû*, extending S.W. to the fort of the *Gök Dil-li* hills, the most northerly of which bore N. 80° W. Between the *Gök Dil-li* (the other slope of which we had visited on our excursion to *Virân Shehr*) and the *Baghrân* hills to our right, and which we had crossed over on coming to Gurun, were the *Süngrerlû Tagh*, also a low range of limestone hills, stretching 15 miles from S. 70° W. to N. 80° E., 5 miles off. *Karâ Bunâr* lay immediately over a line of low hills that united the *Gök Dil-li* with the *Süngrerlû* hills, N. 52° W.

On the west side of the glen, the *Injeh Sû* received many tributaries: one from some Kurdish tents (*Kizil Virân*), 1½ hour N. 60° E.; and several small rivulets from a district of basanite, which we passed over on descending the hills to gain the river's bank. We crossed it by a bridge, where it was 6 yards wide by 2 feet deep; and then ascended to *Injeh Sû Kõi*, a mere farm,

where nearly one-half of the stream is supplied from a glen bearing N.W. by W. The main branch still continued a tolerable rivulet one hour further up to the village of Kópek Virán (Dog Desert). There were also other small tributaries: one from Tágh-terah (Mountain-skirt), W. of Kópek Virán; another from Bel Buñár, in the Gök Dil-lí. We returned the same day to Gurun.

18th.—Leaving Gurun, we proceeded to the eastward along the northern bank of the Tokhmah Sú, which is bordered by chalky cliffs 300 feet high. A mile below, was the village of Khuzin, of sixty houses of Mohammedans, with gardens along the banks of the river, from the sudden rise of which they appear to suffer much. Numerous grottoes exist on the cliffs above. A mile beyond is a small waterfall over basanite; and a little further on, the river receives a considerable tributary from the S., which is said to issue from a limestone rock only 3 miles from its junction. This subterranean stream, with the not uncommon name of Gök Buñár (Heaven Spring), is renowned for a fish which has only one bone, and is sacred to 'Alí. Up the same valley, is the village of Tanil; and immediately below, the Tokhmah Sú forces its way through a steep and rocky pass of basanite, above which, to the S., there is a curious isolated mass of the same substance, looking like a castellated building, and called Tanil rock.

We descended hence to the large village of Tanil, with sixty or seventy houses of Mohammedans, beyond which the valley opens, and the Tokhmah Sú receives another tributary called Sâch Aghz (Hair-mouth), which flows through lofty limestone cliffs to the N. On the right bank, and at the foot of a rather remarkable hill, is the village of Tokhmah, whence the river receives its name. Half a mile below this, we crossed the river over a bridge of one arch. It is here, after receiving the Gök Buñár and the Sâch Aghz, 16 yards in width by 18 inches in depth, but is much lower in summer. A little below it enters into a glen of limestone, dipping E. The road hence turns to the S., but joins it again between a ravine and a village called O'rtah Kõi (Midville), and a recess on the N. side called Sâri Kayá (Yellow Rock). Beyond this, the river losing itself amidst lofty and inaccessible cliffs, the road is carried over limestone hills, in a S.S.E. direction, to the valley of Derendah; while the river itself—passing by Dereh-jik (Little Valley), with perpendicular chasms, and a cliff nearly isolated in the midst of the stream—washes the walls of a first portion of the town, containing a few gardens, and two tall minarets, and then pouring itself into a dark and narrow ravine, isolates the castle-rock from the opposite precipices, and then issues forth from its narrow chasm to water several miles of

gardens and country houses, which form the summer residences of the inhabitants.

19th.—The rock upon which the castle of Derendah is situated is nummulitic limestone, forming cliffs of from 50 to 100 feet in height, and rising 300 feet above the river's bed. The castle is only approachable in one direction, which is defended first by a gateway of modern construction and Saracenic style, with an inscription which was so high as not to be legible by Mr. Rassám. Then at a distance of 223 feet up a winding road, there is another portal of a similar character; and 261 feet further ascent brought us to the top of the rocks, with a ruined bastion to our left.

The northerly point of the rock is defended by two walls, and there is a hewn staircase leading down to the waterside defended by another wall. There are also many hewn cisterns for preserving rain water. The southerly point is defended by a curtain 30 feet in width, with two lateral round towers; beyond them is a smaller square tower, where the rock is scarcely 20 feet in width. There are also some other minor defences all ruinous; but the cliff is in general so steep, and the asperity of the rock so great, as to require no outworks. The extent of the rock from the northern to the southern wall is 662 yards, the width various, but it does not exceed 150 yards. Upon the platform there are about forty houses. All these ruins by their style, the appearance of the mortar, and of the wood used in their construction, do not date beyond the epoch of the Turks, nor did we perceive any remains which we could determine as belonging to an ancient period, although Derendah, from its remarkable position, has all the appearance of having been one of the many Roman or Byzantine sites which existed in Armenia Minor and Melitene, a province of Cappadocia.

The town of Derendah, like Gurun and Malátiyah, is abandoned in summer-time, the inhabitants retiring to the gardens lower down the valley, and this gives to both towns an appearance of population far exceeding the reality. At Gurun, at an elevation of 918 feet above Derendah, the inhabitants had not yet left the town, but here they had quitted it a fortnight earlier, and to us a great and almost incredible inconvenience resulted from this, as all the cloacas had been opened upon the streets, and the walk to and from the castle was rendered by this circumstance a more sickening business than can be possibly imagined.

In the warm valley of Derendah we collected about 200 species of plants already in flower, most of them familiar friends, belonging to the genera *Thlaspi*, *Cynoglossum*, *Sinapi*, *Papaver*, *Ranunculus*, &c., and only interesting to geographical botany. The Tokhmah Şú is here very rapid, and flows at a rate of about $\frac{1}{3}$ of a mile an hour. Lat. by mer. alt. of ☉ and by α Polaris $38^{\circ} 33' N$.

20th.—Leaving Derendah in a S.S.E. direction, we crossed a hill and descended into 'A'shiḵ Dereh-si (Lover's Valley), more beautifully wooded even than that of the Tokhmah Sû, and crowded with country houses. In the centre is a rapid rivulet, 5 yards wide by 2 feet deep, which we crossed on a bridge, ascending hills of gypsum, along which we continued to the village of Shâbuk; the valley of the Tokhmah Sû was always visible on our left hand, and that river was joined, 3 miles below Derendah, by Bâliklû Sû, the river of Manjû-lik, &c., and the most remote source of the river. Our road then lay more to the S.E., over a low, undulating country of marl and gypsum, in part cultivated, and bounded to the S. by lofty hills of indurated limestone. Passing the village of Yenîjah, also with summer habitations, we ascended hills of red and brown sandstone, succeeded by marl and shelly limestone, from which I made a large collection of turritellæ, cones, &c. &c. The country beyond the valley consisted of long ranges of conical hills and steep platforms, which were composed of basanite and trap rocks.

We commenced our ascent of these mountains at the village of Setrek. They are all together called Bel-lî Gedik, but many of the different summits, which have the appearance of having been rude hill-forts, have distinct names, as Chichak-lî, Karâ Kayik, Kilîsâ Ḳal'ah-sî, Sârichî châk, &c. The crest of these mountains we found, after about 2 hours' ascent, to be at an elevation of 5625 feet, and we enjoyed from thence a fine prospect of the hills of Al Bostân and the mountain chains along the Jâihân (Pyramus). From hence we descended to the encampment of the Kurdish tribe of Bekr U'shâghî, and having announced that we came to place ourselves under their protection, we pitched our tent in the valley below.

21st.—We travelled to the eastward still over a trap country, occupying the foot of the Akjah Tâgh. Shortly after mounting, we met a Kurdish chief on his road to Bostân, with family and attendants. His two wives rode before him; both were well-looking, fat women; their faces were uncovered, they rode astride, and remarkably upright, with an air of dignity as if they had been the mothers of heroes. Crossing some limestone hills, where I obtained another collection of fossil shells, we passed Jafali, a small village in the head glen of the Aghjah Tâgh, then made a long ascent up a partly cultivated country, and traversing a ridge of limestone with a large cave, descended by a ruined khân into a wide and picturesque valley, bounded by steep limestone cliffs, and the furthestmost point east that belonged to the Akjah Tâgh Kurds. These mountaineers had for many years rendered this road totally impassable, but attacked in all their strongholds,

and besieged in their castle of Kurnak, 4 miles to the N. of us, by the troops of Háfiz Páshá, they were completely reduced, till the unfortunate affair of Nizib, when they rose again to a man, to revenge their partly imaginary wrongs. It took us 3 hours to cross this extensive vale, abounding in Kurd villages, and during which we passed several ruined kháns, and an old bridge over the central rivulet, showing much former communication. After another rocky ascent, the great plain of Malátīyah was seen to extend before us, and descending amidst dwarf oaks with flowering epipactis, we reached 'Arká, the ancient Arcas, built on a mound, like most antique sites, yet having few remains of ancient times to boast of.

22nd.—From 'Arká to Malátīyah, or indeed to the Euphrates, is one continued plain, extending along the foot of the Bághlí-Khánlí Tágh (Garden Inn Mount), and lowering gradually towards the Tokhmah Šú, and thence towards the Euphrates, the lowest axis of the plain being naturally below the junction of the two rivers. Three miles from 'Arká we passed the Sultán Šú, 5 yards wide by 2 feet deep, a tributary to the Tokhmah Šú. The plain is entirely formed of limestone-conglomerate with pebbles of various sizes, and is covered with flowering plants, which give it a very gay appearance. It was remarkable at this altitude how many of these flowers were common also to England. The individuals, and perhaps even the species, over the same space, were more numerous than in our most flowery meadows, and some difference of localities presented themselves, for plants of shadowy hedge-sides, as *Vinca minor*, and plants of warm, stony acclivities were here intermingled with the vegetation of plains and meadows. Passing a large and abundant spring, we came to the deep valley of the Shaḡmah Šú, which we crossed upon a bridge with an elliptic arch, a rare form in this country; and after 2 hours' ride along gardens and vineyards, obtained permission to pitch our tent in one of the most shady and retired of the former, in the village or town of Aspúzí, which is the summer residence of the people of Malátīyah, and 2 hours, or 6 miles distant south of that place.

23rd.—A great deal of misrepresentation has appeared concerning the summer and winter towns of Malátīyah. Malátīyah itself is a small town of about 200 houses, situated upon a plain, and watered by a rivulet which is a tributary to the Tokhmah Šú, but from which it is at a distance to the S. of at least 5 miles. There is little or no wood near the town, which is consequently exposed to all the violence of the sun's rays in summer. There are remains of the old walls of Melitene and of its gateways, as well also of a castellated building; but all are in a very ruinous condition. Formerly, the inhabitants of Malátīyah used to reside

there in winter, and retire to the gardens of Aspúzi in summer; but Háfiz Páshá having made it his head-quarters, has for many years past occupied the town almost entirely, and the inhabitants have been obliged to remain in Aspúzi, where, in consequence, a bázár has sprung up, and all the comforts and conveniences of a town are to be found, while Malátiyah has sunk into a total state of ruin and wretchedness, although even in Háfiz Páshá's absence, it is still the seat of a Káim-makám or deputy. Malátiyah has been spoken of by geographers as being in a very cold situation; and at an elevation of 2780 feet. Although not so high as the central plateau of Asia Minor, still the temperature in winter must be low. The constant temperature during our stay of a large and abundant source issuing from limestone rocks, was 55°, probably about the term of the mean annual temperature. It was not, however, on account of the cold that the inhabitants left their summer dwellings, but on account of the heat that they quitted their winter ones. There is scarcely a difference in elevation of 200 feet between Aspúzi and Malátiyah, but the former extending over 6 or 8 miles of territory at the foot of the Bég Tágh, is subjected to a refined system of irrigation, which appears to have belonged to a remote antiquity, and which has converted what would otherwise have been a barren plain, into verdant and shady gardens. The Turkish inhabitants of Malátiyah are proverbially luxurious, particularly affect very gaudy-coloured clothes, and as the old governor of 'Arká said to us, "Having little money, and still less care, they fill their pipes, and sit by the fountain's side." Háfiz Páshá had also so little gallantry as to say that the ladies of Malátiyah lay under the mulberry trees to let the fruit fall into their mouths. Malátiyah and Aspúzi are both very unhealthy in autumn, when fevers often assume an alarming type. Out of a brigade of 3000 troops as many as 400 were lost in a single autumn. The force of radiation at Aspúzi was 11°. During our stay here, we made excursions to the N.W. to the junction of the Shakmah Şú and the Tokhmah Şú, to the bridge of the latter, and to its junction with the Euphrates, the details of which are laid down in the map.

The meridian of Malátiyah has hitherto been fixed on the maps from that of Someísát. Rennell (vol. i. p. 280) says Someísát is the connecting point between Aleppo and Malátiyah, and the parallel of the latter can be in no other way obtained than by tracing the distance through and from the bend given to the Euphrates hitherto at Someísát, this has led to serious errors in the construction of the maps of this part of Asia Minor. D'Anville considered Malátiyah as placed 1° of lat. in error in the tables of Nasíruddiin and of U'lugh Beg. Rennell, however,

who corrected D'Anville's error, in giving to Asia Minor 1° too little in extent N. and S., placed Malátiyah in $38^{\circ} 22'$ N. The lat. of Aspúzi by our observations was $38^{\circ} 23'$. In Mr. Brant's map Malátiyah is in $38^{\circ} 27'$.

Before we quit Malátiyah, it is as well to remark, that two rivers appear to have been confounded under the name of Melas by the ancients: the river which sprung from the side of mount Argæus, 40 stadia, or 4 G. M., 840 yards from Cæsarea, and which by the bursting of its dikes overflowed the lands of the Galatians (unless the latter had a settlement on the Tokhmah Sú), can scarcely have been the latter river, but was rather the Kará Sú; at the same time, however, Strabo (p. 538) decidedly describes the Melas as flowing through Armenia Minor into the Euphrates; and it is generally admitted that the same river gave its name to the Cappadocian province of Melitene, and to the Town, which as a Roman Station, from a camp became a city, and the capital of the province of the same name. It was indeed from this circumstance that D'Anville and Rennell both supposed the Melas to flow through the city of Malátiyah.

On leaving that part of Anti-Taurus which extends W. of the Euphrates, and comparing it with what we had previously observed of the same mountains E. of the same river, it is impossible not to remark, that the ancients have generalised with great sagacity in regarding as a continuous chain that which to all appearance is only a country of mountains. The most careful and accurate observation can but distinguish a few groups, which only when put all together can be considered as Anti-Taurus; but it is to be remarked that these groups are all composed of modern sedimentary deposits, with a few volcanic rocks; and thus by structure and configuration, geologically speaking, constitute the sub-alpine region of Taurus, and thence are properly Anti-Taurus.

The first group eastward of Arjish is the Khanzír Tágh, which probably does not attain an elevation exceeding 5000 feet. Its direction is from S.W. to N.E., and its extent and width are pretty well defined; but it is continued eastward by low ranges of sandstone hills, which constitute the Yel Gadugí and Kará Túnúz ranges, rising scarcely 1000 feet above the plains; but between them and the Kizil Irmák there are other hilly districts, sometimes rocky, and composed of indurated limestone and volcanic rock; at other times undulating, with occasional cliffs composed of sandstone, red sand, marl, and gypsum. Such are the Şaríchik, the Shema' Tágh, the Abásil-lí hills, &c.

The next easterly group in the Teger Tágh, rising out of a great plain of limestone, watered by the Bálik-lú Sú. This

group is distinguished by some bold isolated mountains, which do not, however, attain any very great elevation; and between this group and the Kará Bel, described in my "*Researches*," is a hilly country of limestones, red sandstone, and gypsum. This part of Anti-Taurus is important, on account of its dividing the waters which flow N. from those which flow S. and E. But south of it there are other and loftier groups: the first and most remarkable of these is the Gók Dellí, or Kóseh Tágh, separated from the Khanzír Tágh by the great limestone plain, which contains the head tributaries of the Seihún. This chain is separated by the valley of the same river from the S.E. offsets of Arjish and the lofty ranges of 'Alí Tágh. To the W. it lowers near Kará Bunár, rises again in the Singulú Tágh, a limestone range of no great elevation, which itself joins with the Baghrán Tágh; the latter breaks into lofty cliffs over the Bálikú Sú, and is prolonged N. of the Tokhmah Sú to the plain of Malátíyah, where low hills of tertiary rock are separated by the river itself from the northerly extensions of the Akjah Tágh, a part of Taurus.

30th.—It was our intention to have proceeded from Malátíyah along the course of the Euphrates, more particularly with a view to exploring the pass of Elegia (Ilíjah; called by D'Anville, Pas de Nushar,) but the disturbed state of the Kurds rendered this journey impracticable. They had only lately been attacked in their mountain strongholds in these countries, viz. Kákhtah and Gergen Kal'ah-sí, by the troops of Háfiz Páshá; but this campaign, owing to the abundant resources of the mountaineers, had turned out of little avail, and Kákhtah was still in open rebellion. The Káim-makám, therefore, refused to lend us horses, or to assist us with guides on our expedition. Under these circumstances, in order to render our passage through Mount Taurus as useful to geography as possible, we resolved upon advancing by the pass of Erkenek, and visiting the unexplored districts of Besní and Adeyámán, in order, if possible, to reach the Euphrates at the southern end of the pass, and in the neighbourhood of Gergen Kal'ah-sí.

It was necessary, for this purpose, at first to retrace our steps across the plain, at the foot of the Bághlí-Khánlí Tágh, to near the valley of the Sultán Sú, when we took a more southerly course, crossing over a corner of the mountain range, then entering upon the great valley of Sultán Sú, which separates the Bághlí-Khánlí and Kurd-Yúsof Tágh from the Akjah Tágh; and after passing along this for about two hours, we turned into a recess in the Bághlí-Khánlí, where we found the village of Gózeneh, and pitched our tent for the evening. By mer. alt. of Jupiter, and alt. of α Polaris,* Gózeneh is in $38^{\circ} 11' N.$

* *Researches in Assyria, Babylonia, and Chaldea.* 8vo. London, 1838.
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31st.—Continuing our route up the valley of the Sultān Şû, in a S.S.W. direction, we soon crossed a branch of the river which came from the eastward, from the Kurd-Yûsuf Tâgh, in a deep ravine of limestone, reposing upon fine-grained sienite. In this deep valley we passed a karavan of Persians coming from the Hâjj, or pilgrimage. Ascending hence, our road lay through a forest of oak, to the point where the plain began to widen near the head of the Sultān Şû and those of the Gök Şû, both tributaries to the Euphrates, but flowing in opposite directions. Upon this plain, at an elevation of 3688 feet, was the ruin of an ancient town, called by the common name of Virān Shehr. This town had been encompassed by a double wall on all but the S. side: the walls were very thick, and defended by towers. In the interior is a chapel, in a very simple and unornamental style, 28 feet long by 18 feet 6 inches wide, and an arch of 20 feet semi-circumference. There is also an acropolis and a central mound, now converted into a khân. These ruins belonged to more ancient times than those of the Virān-Shehr, at the sources of the Seihûn, and were identified by us with the Lacotena, or Lacobena of the Tables, which is evidently the same as the Lavinianesine of Ptolemy (v. 7), which he places to the S. of Melitene, and E. of Cataonia, and consequently, as Rennell remarks, on Mount Taurus. In the subdivision of Cappadocia into ten provinces, by Strabo (pp. 534, 535), Laviniasena is noticed as one; and further on, (p. 540), he mentions a prefecture of Cappadocia, by the name of Laviniasena,* both of which appear to refer to the same district.

In the evening we gained the village Şarghî, situated in a valley, at an elevation of 4030 feet at the southern foot of a group of mountains called Kûrû Tâgh (Dry Mount), which are a continuation of the Kurd-Yûsuf. There are here no less than twenty-three springs of water issuing from limestone rock, and forming a large and abundant source; there is also another large spring of the same kind at the foot of the hills, about a mile to the W. They all join the Gök Şû, which rises near a village 1 hour to the N.E.; then flows downwards to the S.W. towards the district of Virān Shehr, bounded by the hills of Tójik-Góẓiten and Mársó. To the S., however, it winds round these, and making a sudden bend enters into the pass of Erkenek, where it is joined by another rivulet; becoming then a large body of water, it is crossed by a modern bridge in the road to Pelveh, and another in the road to Tût, and ultimately joins the Euphrates in the westerly bend made by that river between Hoshun and Rûm K'al'ah. To the N. and

* The MSS. both of Strabo and Ptolemy vary much with respect to this name: Laviniasena is most favoured by those of the former; Laviniasena, by those of Ptolemy. See Tschucke's note on Strabo, p. 534.—F. S.

N.W. of the valley of the Gók Sú, are the Núr Hakk Tágh, the southern prolongation of the Akjah Tágh; and to the W., the bold group of 'Alí-shehr Tágh, the highest part of Taurus in these districts.

June 1st.—Crossing the valley of the Gók Sú, we ascended the mountain of Gók Tenah, composed of limestone, with the still more lofty Mársó to our right, whose bare precipices and rocky summit with long ridges of snow gave it much of a truly alpine character. From this mountain we descended upon a marshy but fertile plain, extending to the foot of the Tójik Tágh and Ak Tágh, and bearing a tributary to the Gók Sú; thence crossing some low hills we entered upon another plain, and from thence into the pass of Erkenek. This pass exists in what constitutes the most central and linear extent of Taurus in these districts. Starting from the Euphrates by the Ura Bába, the central chain may be considered as prolonged by the 'Ashúr Tágh above Kákhtah, and the Tójik Tágh and Ak Tágh to above Pelvereh; while the separation of the colossal cliffs of limestone which constitute the Erkenek and Pelvereh mountains, and through which the Gók Sú forces its way, forms the pass called Erkenek. We entered this pass, following what was at once a road and water-course by a rocky glen of limestones; but we soon left the rivulet far below us, till we reached the point where it receives a tributary from the Ak Tágh, at which point are several picturesque mills; then turning round we came to the village of Erkenek, which was formerly a guard-house in the pass, but has rapidly increased in size. The village is beautifully situated at the N. side of the ravine, where the river, continually descending amidst rocks and precipices to the W., finally reaches a varied and boundless mountain scene. Notwithstanding its wild position the village is surrounded by gardens and trees, watered by innumerable springs, and every possible inch of ground is turned to account: it is situated at an elevation of 3828 feet above the sea. The same evening we continued down the valley of the Erkenek river in a S.W. direction; a beautiful fall of water precipitates itself over the limestone cliffs to our right, the river itself being enclosed in a deep glen of the same character till a mile below the village, when it enters upon a district of schistose rocks, covered with a scanty vegetation. We arrived after it was dark near the spot where the Gók Sú joins the river of Erkenek, both flowing to the S.E. through a rocky alpine country, and we had some difficulty in finding a space large enough to pitch our tent.

2nd.—About a mile above the junction of the rivers we crossed the Gók Sú upon a modern bridge of two unequal arches; above it are the ruins of a much older building; from hence we began

to ascend, passing the ruins of an ancient aqueduct covered with a thick coating of travertino; at the summit of the hills vineyards, on a warm chalky soil, led us to the village of Pelveh, which had been lately abandoned by its inhabitants on account of the oppression to which they considered themselves exposed by travellers to and from Malátiyah and the army of Háfiz Páshá. The ancient Perre, which is undoubtedly the same as the modern Pelvereh, was remarkable as being a connecting point, in the Antonine Itinerary, between the routes from Cappadocia, Mesopotamia, the lesser Armenia, and Syria, as it still is in the present day a point of union of roads from Bír, Somcisát, Aleppo, and El Bostán. Hence, from these circumstances, the existence of a pass through Taurus in this part was conjectured by Rennell to exist. We were to have changed horses at this village, but as there were no inhabitants no alternative remained but to take what we had on to Besní: the road became less mountainous and vegetation more varied as we travelled in a southerly direction round the foot of Khurkhun, a nearly isolated conical mountain of ophiolite and steaschist, from whence we descended to the valley of Aḵ Dereh, at the southern foot of the Aḵ Tágh, and containing a tributary to the Euphrates; a long ascent up the Hamiyan hills, and a less tedious descent to the S., led us to Besní, now a small town with a ruined castle, and the site of the ancient Nisus.

To our left, or S.W., on quitting Pelveh, and supplied by springs which descend from that place and from the adjacent hills, are three small and prettily-situated lakes which communicate with one another, and thence supply a common stream, which flows by a valley passed on a former journey from Mar'ash to Rúm-Kal'ah, and constitutes the easterly source of the Jāihán, the main branch of which it joins in the valley below Mar'ash.

3rd.—Besní lies in a narrow limestone glen, without gardens or trees in the town, and thus pent up, is hot and unhealthy in summer, when the inhabitants retire to their vineyards and country houses. The castle is in a very ruinous condition, and stands on the summit of a cliff, which is nearly surrounded by the buildings of the town. Besní contains 2500 houses of Mohammedans and 250 of Armenians, with a tolerable bázár, but provisions were uncommonly scarce, on account of the demands of the military, and we had to pay 3 piastres, equal to $7\frac{1}{2}d.$, for a cake of bread, in England worth a penny. Besní stands in $37^{\circ} 42' N.$, and at an elevation of 2340 feet; the rivulet flows down the ravine to S. by W. The crest of the Hamiyan hills has by barometer an elevation of 3160 feet.

4th.—Started from Besní, passing round the town to the N., crossing a bridge by the Mutesellim's house, and then turned E.

by a village of weavers over a hill of limestone, with cones, pectens, &c., and covered with vineyards and country houses. The valley of Aḳ Dereh, well-cultivated and full of villages, lay below us to our left; while the valley of Hışn Ayás-sí to our right, separated us from the hilly country above the 'Arabah Ováh-sí.

The valley of Aḳ Dereh, at first extending W. and E. to Terbesak, at this last place turns S.E. to join the Euphrates. We forded it a little below this bend about 7 miles from Besní, and then ascended by the Kurd village of Al-mánlí, to a rocky country, rendered verdant, however, by many beautiful vineyards, but terminating to the N.E. in bold precipices over the valley of the Gók Şú. The ride to-day was altogether through a beautiful and fertile country, and we spent the night in a grove near the village of Shám-búlák, which was full of birds, that made the valley resound with their varied song. As with us, the nightingale bore away the palm, and it had the advantage here of singing all the evening as well as by night.

5th.—About an hour from Shám-búlák we came to the valley of the Gók Şú, which was here divided into three branches. Notwithstanding this we had great difficulty in fording the river, which was both rapid and deep. On the left bank was Bur-Kónák, a village with a neighbouring ruin, said to be that of a Khán; above were the tents of the Kóchánlí tribe of Kurds; our road hence lay over nearly level grassy plains, well watered by rivulets, and extending from the foot of Aḳ Tágh and Tójik Tágh to the Euphrates. After a journey of 7 hours we arrived at the town of Adiyamán, which we ascertained from existing traditions to be the same as the Hışn Mansúr of Idrísí, and also probably the Carbanum of the itineraries.

Adiyamán is a small town nearly circularly disposed round a mound called the Castle Hill. It is surrounded by gardens and groves, and contains 800 houses of Mohammedans and 300 of Christians. It has several mosques, three ruinous kháns, and one bath. On an adjacent hill are the tombs of two celebrated men, Maḥmúd el Ansórí and Ibn Zaír Ansórí. Lat. by Spica Virginis and Polaris, $37^{\circ} 46'$. Elevation 2700 feet.

6th.—Our road lay through a country of the same character as yesterday, only with deeper valleys and larger rivulets. Six miles from Adiyamán we passed Kára U'yúk (Black Mound), thence over alternate plains and valleys, always along the foot of Mount Taurus, we passed many villages of Kurds, who now constituted the whole of the population, till we arrived at the village of Kerkunah, or Kerkun Bózúk, where we pitched our tent in a small orchard of apricot trees. The Kurds sought to pick a quarrel with us in the evening, and even got to handcuffs with

our servants, but we managed to quiet them; notwithstanding which, when it was dark and impossible to start, they came and told us we had no right to have our tent in the orchard and must decamp immediately; their object in this was too plain to be misunderstood, and was therefore peremptorily refused. We ultimately obliged them to give us a guard from their own village to watch over our things. Kerkunah, by mer. alt. of Spica Virginis, is in lat. $37^{\circ} 42' 20''$ N.

7th.—Left Kerkunah early, and travelling to the N.E. passed *Karâjûrân*, a small village, then *Kharîk*, where we descended by a ravine in chalk, beneath sandstone, clothed with wild fig-trees, mulberries, and the refreshing Judas tree (*Cercis siliquastrum*). At the base we reached the river of *Kâkhtah*, the waters of which were anciently carried to the capital of Commagena, by aqueducts running parallel to the Euphrates. We experienced no trouble in fording the river, which formed several branches, and ascended by an orchard of pomegranate and mulberry trees, of which there were many along the banks of the river, at a distance from any house. There is also an infinite number of sparrows, which here, though unused to see men, immediately become social. We arrived early in the afternoon at *Tókâriz*, a village of a Kurdish *Bóyah Beg*; in the evening the chief paid us a visit in our tent, he was very suspicious, and our open plain statement regarding the objects of our journey did not satisfy him. He examined our things closely, and appeared to think that if there were a general division of them, he would take care to come in for his share. In the evening there was a robbery committed close to us; a party of the villagers armed themselves and turned out, but finding that the people robbed did not belong to them, they returned without interfering.

Tókâriz is but a small village of about sixty houses, most of which are enclosed in a kind of quadrangular fort. Its lat. by mean of mer. alt. of Spica Virginis, and alt. of Polaris, is $37^{\circ} 46' 20''$ N. Elevation 2015 feet, and not above 5 miles in a direct line from the Euphrates.

8th.—On leaving *Tókâriz* we began again to approach Mount Taurus in a N.E. direction, our object being to reach Gergen Kal'eh-sî, which was at the exit of the Euphrates from the mountains. *Kâkhtah* was only 3 hours off, and possessed a castellated relic, but it was impossible to visit it as the Kurds were in open rebellion. We could not get a guide for our road, but travelled from village to village, passing *Tornedah*, a village situated on the two sides of a ravine, with a rivulet flowing S.E., and soon gaining the gravelly country of the Euphrates, with several villages and cultivation, succeeded by a district of basanites, from which we descended into a deep valley adjacent to the Euphrates, called

Châmûnî. We ascended hence a steep limestone-hill, and following a rocky path, reached Oldish, a village of eighty houses, with gardens and orchards, inhabited by Armenians and Kurds. The costume of the latter was very picturesque, all wearing a waistcoat of brown felt, with cartridge pouch of the same colour. No adult went out without his gun. Following a rude path on the side of a limestone declivity, we reached a narrow pass, with pinnacles of limestone on one side, and remarkably curved strata on the other, and this led us into the valley of Gergen. There were remains of two square buildings, and of a wall which formerly defended this pass; a quarter of an hour's ride along the foot of the cliff led us to the village of Gergen, peering over which and advancing on a bold rock over the Euphrates was the castle of the same name.

9th.—The modern town of Gergen, although the seat of a Mutesellim, is only a small place, containing about 100 houses, and there are thirty more in the castle. The chief population is composed of Kurd mountaineers of the tribes of Julerli, Durganlı and Murdesli; but there were also a few quiet, devout Turks, besides twenty houses of Armenians in the town and five in the castle. This small congregation has a priest and a church. The Mutesellim was then with the Ser-'Asker's army, and his representative made it a point of telling us on our arrival, that the Kurds could not be kept in subjection, that he had no command over them, and requested that we would not pitch our tent far from the town, as otherwise he could not be answerable for robberies.

Early in the morning we visited the castle, an interesting remnant of antiquity: the castle-hill is separated from adjacent cliffs by an excavated way 21 feet deep and 41 feet wide; this is crossed by a wooden bridge, supported by central square pillars. The gateway is rather handsome, but of Saracenic architecture, with an Arabic inscription over the portal: it leads into a covered way with three arches, extending 25 feet, and then by an open way along the side of a rock 100 paces to a second gate. Here the passage is cut out of solid rock, in which there is a recess like a frame, which may have contained a statue or head in bas-relief, but now totally effaced; round this frame is a long inscription in Byzantine Greek letters, of which only a few words here and there remain legible. Beyond this we entered upon that part of the fort which contains the houses, and which is in a more dismantled condition. On the highest part of the rock there is a mass of solid stone-masonry; there was also in the castle three small pieces of ordinance of curious workmanship which belonged to the period of Arab domination. Gergen Kal'eh-si has been

identified with Juliopolis, but it has evidently often changed masters, and appears to have been as long a place of resort for the Arabs of the Euphrates, as it has been a retreat to the restless Kurdish mountaineers. It was very remarkable that the Commander of such an army as the Ser-Asker's should leave in his rear such points of retreat and defence as Kákhtah and Gergen unsubdued or unprotected.

The view from the castle is one of great beauty, and in one direction, that of the plain of Siverék, very extensive, being only limited by the Karájah Tágh to the E., and extending beyond the reach of vision to the S. The great slope of the Kurdish district of Tókáriz towards the Euphrates, is however for the most part hid by limestone cliffs. To the N., N.E., and N.W., is varied mountain scenery, amid which the rocky pass of Kákhtah, the high conical mountain of 'Ashúr, the bold mountain ridges, all limestone, of Kizil Yabán, Sarabún and Haserán, and still more the remarkable cone called Ura Bába, form the principal features; but the most attractive objects are the green adjoining vallies and the rich sloping hills, in districts supposed to be almost uninhabited, but where villages are met with, and cultivation is extended in almost every direction. The Euphrates sweeping round through Mount Taurus a few miles above Díriskó, attains at that point its most easterly curve, rolls over rapids immediately above the village so named, and then turning again below the cliff of the castle of Gergen, passes through a very narrow gorge above 400 feet in depth, of which one-third is formed by nearly perpendicular cliffs: from this it emerges below the valley of Chámúni, and its banks become for a time productive and luxuriant. The valley of Gergen, wider and more cultivated than that of Chámúni, boasts of two villages besides the town: the chief rivulet that supplies it with water, comes from the rocky Kakishur Kebbán, while another stream rolls like a white sheet over the declivities of the Sarabún. The adjacent valley of the Euphrates contains the two villages of Díriskó, and two smaller ones of Panduri at the foot of the castle. The summits of the mountains around are, for the most part, bold, rocky, and barren, the declivities are also rocky and uneven, but well wooded, with much breadth and depth of shadow. The whole effect is one of dark mountain scenery, with occasional glimpses of light from winding rivers, white cliffs, smiling villages, crops and vineyards, which still belong in this, as in almost all towns, rather to a sub-alpine than to a mountainous region of the first order.

The well-known statement of Pomponius Mela (lib. iii. ch. 13) '*ni obstat Taurus, in nostra maria venturus*,' which is introduced into all notices of the Euphrates, as referring to the non-existing

bend or elbow of that river at Samosata, may now, that the knowledge of the course and windings of the Euphrates has been so much improved, be made to apply to either of the most westerly curves of that river, the one occurring near Malátiyah, the other at Rúm-Kal'ah. The most weighty arguments are in favour of the first and principal curve which takes place before the river enters Mount Taurus, that at Rúm-Kal'ah being south of the mountainous district. Pliny (lib. v. ch. 24) says, "*Apud Elegiam occurrit illi Taurus mons.*" Elegia is represented by the modern I'z O'ghlú, and it is there that the Euphrates after issuing from the mountains of Kebbán Ma'den, and having turned to the west round the remarkable peninsula of 'Abdu-l-Wahháb, terminated by the rocks of Munshár (D'Anville's Pass of Nushar); receives the Tokhmah Sú, and then takes an easterly bend to pass the rocky mountains of Bághlí Khánlí and Beg Tágh. To the E., however, the obstacles met with by the river do not assume a formidable character till the Mount of Sarim-chám or Da'wah Bógház, the structure of which is described in the "Researches," approach the river, and hence it is between them and the limestone mountains of Beg Tágh, that the first rapids of the Euphrates, which are only two, occur. The second obstacles, marked also by two rapids, occur at the meeting of the Shiró Tágh, so named from a village in the mountainous district W. of the Euphrates, and the Azarak (Azrak) Tágh, in the declivities of which lie the north-western sources of the Tigris. Immediately below these rapids the river can be crossed on rafts, and with the exception of another small rapid, it then flows on without interruption, nearly to Gergen Kal'eh-sí, above which, as mentioned before, there is a single rapid, noticed by the ancients as being above Samosata, but I could not trace any existence of it at present. Before we arrived at Rúm-Kal'ah, besides many smaller ones, the river makes two large bends, the one in a westerly, the other in a southerly direction, and the last is caused by a huge hill of limestone near Jemjemeh. Below this there is a ferry, a little beyond which the river enters into the massive limestone district of Rúm Kal'ah, by which it is finally turned into its ultimate south-easterly direction. This last circumstance is almost the only one in favour of the supposition that this westerly bend is that alluded to by the ancients as preventing the Euphrates from joining the Mediterranean, but we must also consider that the extreme easterly origin ascertained by this expedition, to belong to one of the sources of the Pyramus, also places the Euphrates to the N. of Taurus, in a position which would allow a writer to say "*ni obstat Taurus, in nostra maria venturus.*" Modern geographers knew that neither the hills of Samosata nor those of Rúm-Kal'ah, were Taurus,

and hence D'Anville (*Euphrate et Tigre*, p. 7) says, that the Taurus of Pomponius Mela, is Amanus, but Amanus has no existence W. of Gaur Tagh. It appears, however, that Pliny also considered the hills at Rúm-Kal'ah as 'Amanus, for he says Samosata stands at that remarkable bend, in the course of the Euphrates, where, after its emancipation from the skirts of Taurus, it first points towards the gulf of Issus, but the roots of Amanus turn it aside from the Mediterranean towards the Persian Gulf. This, it is to be observed, is the second repulse the river meets with according to his own account: the first on entering Taurus, the second at the roots of Amanus.

The whole time of our stay at Gergen Kal'eh-sí was occupied in endeavours to keep the Kurds in good humour: they insulted us, and sneered at us, which is a rare thing, even in the interior of our tent, but forbearance prevailed; and after undergoing a long trial of temper and patience, during which we many times nearly came to open war, we got mules and started with a party of mountaineers, who, as they were luckily going on business as far as Bir, did not dare to carry their guns with them, a circumstance which rendered them much less impudent and obtrusive, but did not entirely quiet their strange tempers. Before I leave Gergen Kal'eh-sí, it is well to remark, that in the valley the lower beds consist of red sandstone and sandstone conglomerate, supporting limestone, with pectens, cones, madreporites, &c. The strata dip in opposite directions, at the two sides of the valley. The elevation of the town is 2724 feet; and the latitude by mer. alt. of the sun and of Spica Virginis, $37^{\circ} 56' 30''$ N.

10th.—The valley of Gergen Kal'eh-sí, except in proceeding N., has only one entrance; and descending due S. from this, we reached the borders of the deep limestone glen, previously noticed, and named Hadró: the road winds down the side of the precipice, and becomes, in some parts, a mere staircase. As there is but one small raft on skins, the whole of the afternoon was occupied in ferrying over; after which we repaired for the night to the village of Masró, where we were quite delighted to find the inhabitants quiet agricultural labourers.

11th.—Our road now lay in a south-westerly direction, parallel to the general course of the Euphrates, the river flowing through hills of trap. Passing Hadró, with groves and gardens, we came, after 3 hours' ride, to the banks of a small river, full of fish, called Zengbár (Negroes), which, before it joins the Euphrates, forms a large muddy pond, abounding in *Trionyx Euphratica*, which I had not observed anywhere farther N. Below this point there are some small rapids in the Euphrates: after travelling 2 more hours over a dark country we came to a

larger tributary, called Chām Chāi (Fir-river), flowing slowly through a deep ravine of chalk. Passing this we came, in 2 hours more, to a ravine with a small rivulet, and numerous excavated caves, some of them of large dimensions. At the head of this ravine was the village of Hoshun, with about fifty houses, situated upon a tel or tepeh (hill or mound); and by an alt. of α Polaris, in lat. $37^{\circ} 37' 20''$ N.

12th.—We had now to travel over a country very little cultivated. There were several small villages on the banks of the Euphrates, which is joined, at a short distance below Hoshun, by the three mouths of the Kákhtah river, which form a delta. From hence to Someísát the remains of an aqueduct, which carried the water of the Kákhtah river to that place, are every now and then visible. Its lofty arches, supported either by strong walls or piers, must have been a work of some importance. As we had reason, from the neighbourhood of the army, to suppose that Someísát would be partly abandoned, we stopped at the small village of Ledar, a short distance to the N. of the town; and by alt. of α Polaris in $37^{\circ} 34'$ N.

13th.—When we passed by Kantarah, the village opposite to Someísát, we found it, as we expected, deserted: after 5 hours' slow ride, we left the banks of the river, near the bend of Jesujuneh, and, ascending low chalk hills covered with gravel, passed the village of Yásínjah, where we observed many flocks of rose-coloured thrushes (*Turdus roseus*), the Seleucidæ of Pliny, and arrived for the evening at Yailāsh (seat of a bóyah-beg), a village built round an antique-looking tel or tepeh. The surrounding country is well cultivated; but there is a want of water, which at the village is obtained from wells. By position and distance, this would appear to correspond with the ancient Porsica, which we had been looking out for since we left the banks of the river, already surveyed from Bír to Someísát, by Lieut. Lynch, I.N. Yailāsh, by alt. of α Polaris, is in $37^{\circ} 23'$ N.

14th.—Travelling over the plain as before, we approached some low limestone hills, with rude houses built with stones, which had formerly belonged to edifices of some pretensions, both as regarded size and ornament: these were scattered about in three groups, about $\frac{1}{2}$ mile from one another; the central group was the largest, and contained the remains of two churches, still in a good state of preservation, having been solidly built, after the fashion of the Greek churches at Mal-Agob, with bold semicircular arches, and roof of large slabs of stone. These churches evidently belonged, however, to a Syrian community; for the altars were level with the floors; whereas in the Armenian churches they are raised, and in the Greek are placed in a sanctuary.

Accompanying these ruins were some curious cavities, hewn in the solid rock, in the form of a pear, the base varying from 8 feet to 12 feet in diameter, and the depth from 12 feet to 20 feet, or upwards; but the aperture is small and round, and generally covered up with one, or, at the most, two great stones. They are coated in the inside with mortar; and some of them being broken down, are used as stables for mules; others are filled with tibu or chopped straw, the usual food for horses. These cavities have been supposed to be tombs; and their proximity to the church appears to favour such a supposition; but they may also have been repositories for corn or water. The mortared walls favour the supposition; but the first is rendered most probable by the circumstance of cavities of a similar nature, but less carefully constructed, being still in use in many parts of Syria and Asia Minor for the same purposes. This spot is now called U'ch-Kilísá (the Three Churches); and there are still the houses of a few poor farmers in the neighbourhood.

A little beyond this we came to some more ruins: a single wall with two windows was all that remained of the church of this village. The soil was now formed of indurated chalk, appearing often on the surface, like a rude but nearly level rocky pavement, at times covered with a slender vegetation of grass. The outline of the country was undulating; but there was an almost continuous barrenness, and a total want of water. In this inhospitable district we were constantly meeting with ruins of early Christianity, ecclesiastical or monastic edifices, often of great beauty; remains of large villages, with deep cisterns or reservoirs hewn out of the solid rock; arches isolated on some lone rocky summit; or fountains deserted and broken up. We were evidently passing through an interesting district, as being the seat of one of the early Christian communities in these countries; and it was impossible to travel through such a scene without asking oneself, was it from fear of prosecution, to avoid jealousy or envy, or still more probably to practise the severe exercises and austere self-denial which sprang from a then young but ardent devotion, that here, as in the Syrian hills of Reihá and Edlib, and amid the rocks of Sheikh Baráket, or Mount St. Simeon, the early Christians retreated into stony and sterile districts, without shade from the sun, and even without spring-water to quench a summer's thirst.

We pitched our tent in the evening in the gardens 1 hour to the N. of Bír, as we expected the town to be crowded: the tents of the Ser'asker's troops extended along the opposite banks of the Euphrates. Our position was in $37^{\circ} 3' 45''$ N. We suffered in this place from dust and flies; so much so that we could hardly get on with our work.

15th.—Crossing the Euphrates, we rode to the village of Nizib,* where Háfiz Páshá was encamped with his troops. This village, situated in N. lat. $37^{\circ} 1' 15''$, and nearly due W. $7\frac{1}{2}$ miles from Bír, is at the foot of a range of limestone hills, which extend E. and W. from the banks of the Euphrates, near Tel Balkís, to beyond the meridian of 'Ain-táb: a rivulet flows here from a long valley in this low range of hills, which it fertilises in its progress, joining the river of Kezrín,† about $1\frac{1}{2}$ mile below the village. The soil presents a nearly uniform level at the foot of the hills, sinking only gradually towards the river, when it is cut into deep ravines. Between the hills and the valley are many groves of olives and fig-trees. Háfiz Páshá had at first entrenched himself in a camp on the heights, immediately above the river, on the right bank, and opposite Bír; but had subsequently removed to the pleasanter valley of Nizib, where his camp was only fortified to the right, or the W. and S.W. The general was delighted to see us; but when we mentioned the object of our visit, to obtain a fermán, and a khaváss, for the district of Sinjár, his tone altered very much. These countries had shown many symptoms of dissatisfaction at levies lately made for provender, &c., for the army; he therefore thought we had better delay a little. We then proposed to proceed by Nisibín; and, after further conversation, he terminated by urging, in a manner that could not be refused, that we would spend two or three days with him in the camp. 'Alí Beg, a colonel of irregular troops, was sent back with us to Bír; and so fearful were they of our disappointing the general, that we were much pressed to spend the night at the governor's house at that place. The next morning, on our arrival at the camp, we found a large and showy tent, with a numerous retinue of servants, placed at our disposal, and our table was served from the Páshá's kitchen.

On Thursday, June 20th, the Egyptian army made its appearance, having driven before it the advanced guard of the Turks, and captured several guns and tents. On Friday, the 21st, Ibráhím Páshá reconnoitred the position of the Turks, which led to a small engagement between the out-posts, and afterwards to a more serious demonstration. Saturday, the 22nd, the Egyptians commenced their march along the right bank of the Keún; and, Sunday, the 23rd, had crossed that river, and occupied a position close to our camp, by which, with a short march further, they were enabled to command the whole of our left. Háfiz Páshá was at this conjuncture recommended, by the Prussian staff-officers

* Nezeb in Rousseau's, and Nizeib in Drummond's map.—F.S.

† Kárzín (Rousseau).

at that time in his service, to attack the Egyptians in their present position, or to retire to Bír. We also made a last attempt to obtain even a *tezkereh* to enable us to leave the camp. I represented the necessity of my moving, not so much on my own account, as for the safety of my instruments. "If you are not safe here," answered the Páshá, "when will you be safe? Have you so little confidence in our success?" To this I answered, if he would only let me send my luggage to Bír, I would willingly stop with him myself. After some hesitation the general promised he would start with me at midnight. I had, however, scarcely imparted his last determination to the Prussian officers when a Múllah interfered: the Páshá altered his intention, and resolved upon giving battle the ensuing morning: at midnight the camp of the Egyptians was canonaded and thrown into disorder; but the Múllahs also prevented any advantage being taken of this.

24th.—The two armies came into collision; that of the Egyptians, with irregular troops, was 34,300 strong, according to the reports that could be most relied upon, with 110 guns; that of the Turks 33,200, with 160 guns. There were also on the side of the Turks two battalions of Egyptians, that had surrendered at the taking of 'Ain-táb, besides many deserters. Three regiments of Turkish cavalry remained inactive during the conflict. The Egyptian prisoners and deserters gave way at once, and the Báshi Bózúk, or irregular troops, to whom was left the support of the extreme left, repaired, soon after the commencement of the engagement, to the camp, where, tearing to pieces the tent in which it was known that the treasury was deposited, they endeavoured to secure whatever was in their power. The Egyptians, in the mean time, meeting with no opposition, had advanced along the foot of the hills, and, taking possession of the village of Nizib, and the head of the camp, opened a fire upon the line of fugitives and troops along its whole extent. Notwithstanding all these disadvantages, the main body of the 'Osmánlís fought with great courage, and the battle remained some time undecided, till the misfortunes entailed at first drew the remainder into disorder, and flight became general.

Early in the morning we had endeavoured to secure horses sufficient to carry off our baggage in case of misadventure, and while Mr. Russell and myself rode out to see the progress of events, Mr. Rassám was to superintend, if possible, their starting. In this, however, he was opposed by the Turkish troops, who, on his trying to escape, surrounded him with their bayonets, and finally, on the plundering irruption of the Báshi Bózúk, he was obliged to make his escape, with only a servant, who carried two

small bags. The very early period of the engagement, at which the Egyptians planted their guns, and opened a raking fire close to our tent, prevented Mr. Russell and myself from ever regaining it, notwithstanding many attempts, in which we were also much impeded by fugitives and retreating artillery. My maps and papers I had luckily secured about my person, and the sextant and Kater's amplitude and altitude-instrument had been packed upon a spare horse, upon which a servant was, in case of emergency, to effect his retreat. We thus commenced our retreat apart from one another, our arrangements having been previously made that we should meet at 'Ain-táb. It was, however, near sunset, when following the dense crowd of fugitives, that the ruined towers of Rúm-Kal'ah, only a few miles to our right, warned me that we were upon a wrong road. We then became alarmed for the safety of Mr. Rassám, and resolved upon running the chance of finding our way across the country. We had not, however, left the main body a quarter of an hour, before we found ourselves at hand with five armed Kurds, who were very vociferous in demanding where we were going. Being thus caught off the road, we thought that they took us for deserters, trying to join Ibráhím Páshá, and having entered into a colloquy, we foolishly got off our horses to show our *fermán*, which was a signal for a commencement of robbery, in which they obtained possession of my watch, and from Mr. Russell of his chronometer. They then hesitated a moment how to proceed, during which Mr. Russell, having stolen round his horse, secured his gun, and had it pointed at one of the robbers, and by a nearly simultaneous movement I had mounted mine, and secured my pistols; the consequence was, that we obliged them to restore our watches, and even to pick up some papers which had fallen during the discussion. We, however, gave up the idea of crossing the country, and rejoined the main body of the army, with whom we continued our retreat, passing a rocky ravine of limestone about 400 feet in depth, down the sides of which the road was the most precipitous and difficult I had ever seen a body of men, still less loaded horses, attempt, and entailed the most curious scene of disasters and fallings over that can be well imagined. After dark, we reached another ravine of a nearly similar character, where, having divided a small crust given to us by a soldier, for we had not broken fast all day, Mr. Russell and myself slept by our horses, under the shelter of a noble plane-tree. It may be remarked here, that in the course of the day's journey we found basanites cropping out in the great uplands of indurated limestone of Rúm-Kal'ah, a circumstance which does not occur nearer to the Euphrates.

26th.—We continued our retreat, ascending steep precipices to

the valley of 'Arabán Ovahsi. The natives of the numerous villages in this fertile valley had armed themselves against the Turks, who offered no violence nor harm to their habitations; but, dividing themselves into two parties, the infantry by a well-sustained firing cleared the rocks, while the horsemen united against the bodies in the plain. The firing of both parties was, however, very harmless. Passing over a long sterile limestone country, where many broke down from mere thirst, we reached a small river, crossed by a very antique-looking and ruinous bridge, which was what I had often asked for in these countries, the Pons Singæ of the Tables. Here, by accident or otherwise, two corn-fields caught fire, which spread with fearful rapidity; we passed many villages on our road hence, feeding our horses occasionally in the corn-fields by the road-side, for we had no alternative, they would not give or sell corn, or a piece of bread at the villages, and our safety depended upon our steeds. We stopped again two hours, from 11 to 1, and slept a little, arriving at Besní at 3 o'clock in the morning. When daylight cast its early glare upon the singular groups sleeping in the streets, on the roofs, or by the fountains, or collected in the houses, bázárs, and mosques; it was a scene never to be forgotten, but to us particularly delightful, for here we found Mr. Rassám in good health, and afterwards a servant with the instruments; but the other, who had in charge Mr. Rassám's desk, with a chronometer and a small sum of money, was, from what was afterwards heard, robbed and stripped near Rûm-Kal'ah. Many already began to arrive in this latter condition, and one European *medicus*, little accustomed to trudge it on foot in hot countries, had lost his horse and all his clothes, by unwarily getting himself among a party of Báshi Bózúk, actually in the main line of retreat. Some attempt at reorganization was made at Besní, by Sa'du-llah Páshá, second in command; orders were given not to leave the town, but to collect together for the morrow, and we thus gained some rest, and started in a stronger body.

27th.—On passing the foot of Mount Khurkhun, a sharp irregular firing from above brought many a hundred muskets to bear upon the spot, and soon dislodged a party of Kurds. We stopped a few moments at Pervereh, and the same night reached Erkenek, where we obtained some food.

28th.—Crossing the Gók Tenah, where we passed the body of an Armenian killed by the Kurds, we proceeded by Şarghí to the sources of the Sultán Şú, where we found fourteen guns that had been sent as a reinforcement; these we took back with us, stopping the night at Gózeneh, or Góz Khánah, and reached Aspúzi next day.

29th.—We found Háfiz Páshá had also arrived at this place by another mountain road, along which he had been subjected to very great annoyance from the Kurds. We at once requested a tezkereh for Şámsún, to which, when granted, was added the polite offer of a Tátár. We intended to start by break of day, but the Páshá insisted upon seeing us before our departure. He did not sleep, he said. We accordingly waited upon him at 3 A.M. next morning, and found him already up. His brother, Ibráíl Páshá, had been weeping during the night. It was almost with difficulty that we got away from our distressed friend, and we only got that morning to Malátiyah, having had to send a message back for a guard, as the road to Sívás, by Delikli Tásh, was shut up by the Reshván Kurds. Luckily, the mutesellim of 'Arab-Keíl (Kír), who had come to satisfy the inhabitants of his district that Háfiz Páshá was still alive by his personal report, was about to return that evening, so we resolved upon altering our road, and started soon after dark, with a guard of about thirty men, over the bridge of the Tokhmah-Sú, and by the banks of the Euphrates, sleeping a few hours at Mor Hamám, where the inhabitants boasted of having themselves captured seventeen Kurds that day.

July 3rd.—We arrived at 'Arab-Keíl (Kír) early this morning and feasted upon fried eggs, mulberries, and sour milk. What a change had come over our circumstances, when a few days ago a bit of bread would have almost tempted us to robbery! The only drawback was the health of the party. The hot rays of the sun had been unrefreshed by any breeze for two days; both Mr. Russell and the Tátár were completely knocked up. Our horses had also suffered severely, and had mostly sore backs or abscesses. A guard was given us to Dívrígí, which we reached by a road different from that by which I had formerly travelled, and which presented me with some new geological features, more particularly an extensive trachytic tract.

We stopped a day at Sívás, in lat. $39^{\circ} 44' N.$, and arrived on Monday, July 15th, at Şámsún. Here we found one of the steam-boats had had an accident, and the others upon the same station had not been here for some time. Much anxiety prevailed in the town, to which many Europeans had repaired from the interior, on account of the alarm produced by the death of the Sultán, and the defeat of the Turkish army. There had also been several cases of plague in the town, which malady had been brought by a Circassian vessel. Under these circumstances, we resolved upon not waiting the chance of a steam-boat, but to continue our journey by land; we accordingly the same evening retraced our steps through the beautiful but muddy forests that clothe the shores of Paphlagonia, and, sleeping near a spring, next day

reached Gerzeh, formerly a bathing-place of much repute, but all the ruins at present existing are of the Mohammedan æra.

At Merzevân we regained the great road, which we found to our surprise to be crowded with a vagabond and undisciplined soldiery, the remains of the army of Zaïd Mohammed Páshá of Angora, which, after robbing the treasury, had, upon the news of Háfiz Páshá's defeat, broken up into separate parties, now on their way to Za'ferán-Bóli, Kastamúni, Bóli, &c. We had the greatest difficulty in keeping peace with these disorderly troops, and one Tátár deserted us during the night-time. We, however, got through with safety, and on the 28th July arrived at Constantinople.

IX.—*Notes of a Journey through a part of Kurdistan, in the Summer of 1838.* By JAMES BRANT, Esq., H.B.M. Consul at Erz-Rúm. Communicated by Viscount PALMERSTON, G.C.B.

My arrangements being completed, and the weather having become apparently settled, after a late and wet spring, I left Erz-Rúm on the 16th of June, 1838, accompanied by Mr. Adam Gifford Glascott, of her Majesty's navy, who had volunteered to make a map of our route, and my surgeon, Dr. Edward Dalzel Dickson.

Crossing the low range of mountains eastward of the town, called the Deveh Bóyunú (Camel's neck), which rise to about 800 feet above Erz-Rúm, we descended into the plain of Pásín. At its western extremity we passed a small stream coming from the S., which for a short space flowed to the N., but soon after took a more easterly direction. It is one of the confluent of the Aras, and before reaching Hasan Kal'eh, unites with various other rills, which descend from the mountains round the plain. At that town, the river assumes the name of Hasan Kal'eh Sû; it has there attained some size, reaching to the horse's girths in fording it, and being from 20 to 30 yards in breadth. I was informed that, twenty days previously, it had been so swollen as to have been quite impassable. Flowing still in an easterly direction, at 9 miles distance, it unites with the Bîn-gól Sû, or real Aras, but is previously joined by the Kúrd (Wolf) and Ketiven Sû, both coming from the mountains on the southern side of the plain. At the point of junction of the Kal'eh and Bîn-gól Sû, is a stone bridge, called the Chóbán Kóprí (Shepherd's bridge). After the union, the river is known only by the name of Aras, but, even before its junction with the Kal'eh Sû, the Bîn-gól Sû is often called Aras by the natives. It has a longer course and a greater volume of water than the Kal'eh Sû, and is therefore entitled to be considered as the principal stream. It rises in the Bîn-gól Tágh (Thousand Lake Mountain), a lofty range to the S. and W. of Khinís (or Khunús).

The district of Pásín is divided into two begliks, the Upper and the Lower.

Hasan Kal'eh, 18 miles E. of Erz-Rúm, is the seat of the Beg of the Upper Pásín, whose beglik contains about 120 villages, inhabited chiefly by Mohammedans. The greater portion of the Armenian peasantry emigrated into Georgia when the Russian army evacuated Turkey, after the peace of Adrianople; in consequence of which emigration, the population of the villages has been much diminished, and there is a great deal of ground uncultivated for want of hands.

The Aras divides Upper from Lower Pásín, but there are

a few exceptions, as some villages, which should by this rule belong to the Lower, are notwithstanding attached to the Upper Pásín. The lower division is governed by a Beg, who resides at a village called Ars, on account of its being his native place, not from its importance. This beglik contains seventy villages, and emigration has diminished their population and left lands uncultivated, as it has done in the Upper beglik.

The two divisions of Pásín extend about 40 miles in length, and the breadth varies from 6 to 10 miles. Both are fertile in grain, are in general well watered, and have excellent pastures. The villages contain from twelve to 100 families, but the greater number have thirty houses and under; the larger villages being few.

On the opposite side of the river, facing the town of Hasan Kal'eh, there are innumerable hot springs: some are bituminous, but others appear to contain iron and lime. The hottest are 105° of Fahrenheit. There are two baths built over the warmest and most copious sources, both constantly filled with bathers. The town was one of the old Genoese trading stations, and the castle, built by these adventurous merchants, occupies the oblong summit of a spur thrown out from the main range, which rises about 1600 feet above the plain. The castle commands the town. The modern double wall encircles the town, and joins either end of the castle. This wall is said to have been built by a person called Hasan, whose name has superseded the former one belonging to the town. Some travellers have supposed the ancient Theodosiopolis to have stood here, but there are no remains of antiquity whatever. The bath is certainly not Roman, nor is the bridge close to it. The Genoese castle has long been in ruins and unserviceable; the modern walls are in so dilapidated a state as to be quite useless as a defence.

The inhabitants are exempt from Sáliyáneh, in lieu of which they pay about 50*l.* towards the expense of supporting the post-establishment, and are besides bound to entertain strangers, itself not a light tax, as natives seldom pay anything for lodging and food provided them. The town contains seven mosques and seven fountains, most of which are more or less dilapidated.

As I shall frequently mention the Sáliyáneh,* I will here explain that it is a tax levied for the expenses of the public administration of the Páshálik. The mode of collecting it, is as follows:—When the amount is fixed by the Páshá, the heads of each religious sect meet at the seat of government, and apportion it among the districts of the Páshálik. In the districts, the heads

* Literally "Annuity;" the complete phrase is Sáliyáneh Mukáta'ahai, *i. e.* excise or tax to provide for the annual salaries of public servants. See Hammer's *Gesch. des Osmanischen Reichs*, VII. 575, and Meninski v. Mukáta'ah.—F.S.

of the sects living at the residence of the chief authority apportion the sum allotted to the district among the villages. In the villages the sum to be raised in each is again subdivided among the inhabitants by the heads of the village. It is in some degree an arbitrary tax, and varies in its amount according to the disposition of the Páshá, who produces no accounts to justify its amount, and no one can dispute with him the reasonableness of the charge; however, the tax cannot be exorbitantly increased, unless for some very evident cause, without exciting great complaints; and therefore the Sáliyáneh of one year does not much exceed that of the preceding.

21st.—On leaving Hasan Kal'eh we crossed the plain in a southerly direction; at about $4\frac{1}{2}$ miles forded the Kúrd Sû, flowing to the E., and $1\frac{1}{2}$ mile beyond we forded the Ketiven Sû, at a village of the same name, situated at the entrance of a defile; these rivers unite before they fall into the Kal'eh Sû. We crossed the defile of Ketiven, and gradually ascended the mountains, until we reached a lofty limestone ridge, estimated at about 1400 feet above Hasan Kal'eh, or 7230 feet above the sea. From this ridge we descended into a deep, romantic, and wooded glen, following which in its descent, we were led to the banks of the Bîn-gól Sû, at a place where there is a stone bridge over it, stated to be about 6 hours higher up the stream than the Chóbán Kôpri. The river comes from the S.W. and runs to the N.E.: the current was rapid, the bed full, and apparently deep, and the breadth about 40 yards. Without crossing the bridge we ascended the mountains in a S.S.W. direction, and after an hour reached the small Kurd village of Eipler. The distance from Hasan Kal'eh I estimated at between 16 and 18 miles, which it took us 7 hours to accomplish.

Eipler contains twenty families of Kurds, ten of which are tolerably well off, but the rest are in straitened circumstances, and serve as shepherds and herdsmen to the others. The only road open during the winter from Erz-Rúm to Músh passes through this village, the others being blocked up by snow. Its elevation by our barometer is 6260 feet above the sea. The people this year, on representing their poverty, had half their Sáliyáneh remitted, although the whole amount was but 12*l*: they cultivate some fields, which give them a scanty supply of grain; their main dependence, however, is on their herds and flocks. They easily obtain an abundance of hay for their cattle during the winter, and there is pasture enough during the summer.

22nd.—The distance from Eipler to Kōi-lí is about 12 miles direct S. On our way to it we crossed a mountainous tract, which abounds in excellent pastures: not far from Eipler we passed

near a large Kurd village, called Agh-yáz, but it was situated lower down the mountains than our route, and out of sight. An escort of ten Kurd horsemen who accompanied me came from that village. We reached Kōi-lí at 9½ A.M., and procured a slight breakfast while waiting for our baggage to come up. The village is situated close under the mountains, at about 5900 feet above the sea, ½ a mile from the banks of the Bín-gól Şú, and is in the beglik of Khinís. It formerly contained a great many Armenian families. I was told that 200 emigrated to Georgia, and only about 15 Mohammedan families now reside among extensive ruins. The flat between the river and the village is rather marshy: a guide accompanied us to point out the ford. The Bín-gól Şú is here from 50 to 60 yards in width, its current rapid, the water reaching above the horses' girths. A very little more would have rendered it, if not impassable, at least dangerous and inconvenient, for, as it was, our baggage was wetted. After the passage of the river we ascended through a long grassy valley, crossed a mountain-ridge at its head, descended by a stony path, and afterwards turned due E., our course to this spot having been about S. In 3½ hours from Kōi-lí, we reached Agh-verán, the estimated distance being about 10 miles, and situated about 300 feet higher than that place. In the early part of the day's journey we saw the Bín-gól Tágh: it is a long flat range; the snow lay on it only in patches, but it is said to retain some the whole summer. After turning our faces eastward we had the splendid peak of Sapán (Seibán) Tágh in view, capped with snow: it was, however, at a great distance, and seen over the tops of the intervening mountains. Our baggage did not reach the village until nearly 2 hours after us, during which we were exposed to a hot sun without shelter.

The Ak-sakál-lí (literally white-beard), or head of the village, was absent; he had gone to Erz-Rúm to obtain a supply of shoes, clothes, and other necessities for his family. The village is in the beglik of Khinís, and contains eleven families of Kurds, three of which only were in good circumstances. They had altogether about forty fields under cultivation, and a good stock of sheep and cattle.

23rd.—From Aghverán, Khinís was distant about 9 miles, over a plain cut by deep ravines, more or less broad; the sides are generally of perpendicular rock; the bottom, pastures or cultivated fields. Rills of water flow through some, while others are quite dry. At a village named Parmak-siz (Finger-less) in one of these ravines, we passed a small stream of water, which rose in a mountain near Aghverán, called Kará Kayá (Black rock); and a little distance further on, a larger stream occurs in a broader ravine of the same character; the latter river is called Kilísá Şú,

from a ruined Christian church at the foot of which it passes, but higher up it goes by the name of Peïg Šú, from a village on its banks; both these streams flow E.S.E. towards the Murád Chái; the last-mentioned, I believe, rises from the range of Bín-gól Tágh. We reached Khinís at 9 A.M. This day and yesterday, whenever the breeze intermitted, the heat had been very great, even as early as 7 or 8 o'clock in the morning.

Khinís* is an old town, with an antiquated castle, and hence is generally called Khinís-Kale'h-sí. It belongs to the Páshálik of Músh. The Beg resides here: he is brother of Emin Páshá of Músh, and is named Murád Beg. He was absent; but his Kyayá sent the usual compliments and offers of service by his son, an officer in the militia, he himself being confined to his house by illness.

This most wretched town is situated at the bottom of a deep ravine, with precipitous sides of rock, at an elevation of 5686 feet above the sea: through it flows a stream, over which, within the town, two small stone bridges of a single arch have been thrown; the stream is called the Kál'eh Šú, but lower down it assumes the name of 'Arúz Šú, from a village on its banks: it rises in the Bín-gól Tágh, and falls ultimately into the Murád Chái. The town contains about 130 houses (100 Mohammedan and 30 Armenian) and a well-built mosque. The castle, standing on a peninsula with perpendicular sides which advances into the ravine, is on a level with the surrounding plain, and overlooks the town. A wall, now in ruins, crosses the neck of the peninsula, and once protected the entrance to the castle: the wall, right and left of the castle-entrance, extends along the edge of the ravine, and afterwards crosses it at each end of the town, uniting with two outworks or towers on the opposite side. These works, as well as the castle, have been long going to decay. The Beg resides in the castle: the apartments of the outer court are in ruins; those in the inner are tenanted by the harem of the Beg, and were unapproachable. There is no trade here, but for the supply of the most ordinary wants of the peasantry. The bázár contains about thirty stalls, in which nothing was to be seen but Aleppo handkerchiefs, used as turbans by the inhabitants; boots and shoes from Erz-Rúm; cotton cloth of the country-manufacture; tobacco, pipe-bowls, and a few other common necessities, with fruit and vegetables. The ordinary and legitimate revenue of the Beg is derived from a tenth of the produce of the soil, which yields him about 150*l.* per annum. In lieu of Saliyáneh, the people are bound to entertain strangers; and, this being a post-station, guests are numerous, and the tax not a light one. The soil is not private property, and is never bought or sold. A person may

* Khonús or Khanús.—Jihán Numá, p. 425.

build on any unoccupied ground, without a rent being demanded, or he may cultivate any vacant land by paying a tenth of the produce to the Beg. Any one who neglects to cultivate his fields risks losing them, should there be an applicant for them; but that never happens, as there is more land than hands to till it. The winter is long and severe; the summer hot, succeeding rapidly to the melting of the snow. The town is situated near the foot of the *Bîn-göl Tágh*: it requires, however, six hours to reach the summit, on which there are said to be the remains of a castle. This I am inclined to doubt, as I have repeatedly found that a few stones are quite sufficient to give rise to a similar report. In a N.E. direction, 7 hours distant, is situated a district called *Túzlah*, from a deposit of rock-salt found there, which supplies all that is wanted at an extremely moderate rate to the country around. Here about fifteen lbs. could be bought for twopence. The *Kyayá* of the Beg was extremely civil in supplying us with lambs, milk, &c.

25th.—On inquiry as to the best road to *Músh*, I found that the villages on the direct and ordinary route were without inhabitants, as at this season they were in the mountains for the sake of pasture. We should not, therefore, find the supplies of food necessary; and I was consequently advised to take a rather more circuitous road. By the direct one there was a large river to cross, which must have been forded, but not without inconvenience; by that recommended, however, it could be passed by a stone bridge. I therefore determined to adopt the course suggested.

On leaving *Khinís* we took a southerly direction, and crossed several narrow valleys, with rich grazing-grounds, and ravines such as I have already described. At 2 $\frac{3}{4}$ hours we passed a small Kurd village, named *Mál-akulásh*, and thence took a S.W. direction. We continued over the mountains by bye-paths, through good pastures, abounding with an infinite variety of beautiful and sweet-smelling flowers. Our course gradually became more westerly, until we finally descended by a long slope facing the W. to the village of *Gúmgúm*. We were 9 $\frac{1}{2}$ hours on the day's march; but, as we had frequently halted for our baggage, our progress was slow, and I did not estimate that we had advanced more than 20 miles. A thunder-storm broke over the mountains; and just as the people were occupied in pitching the tents a violent squall of wind occurred, but it was of a moment's duration, and no rain fell on the low ground we were on.

The village of *Gúmgúm* is situated in a pretty valley, at an elevation of 4836 feet, with the *Bîn-göl Tágh* on the N.: from *Khinís* we had gone round the foot of the range. By a direct road from hence, *Erz-Rúm* can be reached in 20 post hours; and there is a practicable way straight across the *Bîn-göl Tágh* range.

The village is a Vakuf,* or endowment belonging to a mosque. The chief has the title of Sheikh, and is of a sect of Dervishes. The inhabitants enjoy an immunity from Sáliyáneh, and from a contribution of men to the regular troops and militia. The place contains thirty Kurd and about 15 Armenian families. Since we left the plain of Pásín I had not seen much tilled land, and the fields I met were carelessly cultivated: in most places the grain was just appearing above the ground. In this valley more land than usual was to be seen under the plough; and I was informed that the soil is rich, the seed rendering about twelve-fold in good seasons.

26th.—From Gúmgúm we took an easterly direction, and after an hour's march passed the Kurd village of Kerbah-kúh, situated on the side of a mountain, at the foot of which runs the Chár Buhúr river, coming directly from the Bii-gól Tágh. In $1\frac{1}{4}$ h., gradually descending to the stream, we crossed it by a stone bridge, beyond which, at $1\frac{1}{2}$ h. distance, the Chár Buhúr unites with the Murád Chái: they meet in a straight line, the latter coming from the E., and the former from the W., and immediately afterwards turn off at a right angle through a narrow valley in a southerly direction: our barometer here showed 4138 feet above the sea. As I rode along the valley on the banks of the Chár Buhúr, I supposed the Murád Chái to be a continuation of that river. The distance from Gúmgúm to the junction of the rivers I estimate at about 11 miles. The straight road from Khinís comes across the mountains, down to the Chár Buhúr, before its junction, and that river must be forded; it was deep and broad. The united stream turns through a valley, which widens gradually until it becomes a part of the plain of Músh. In the valley the river might be about 70 yards wide, but its bed expands when it reaches the plain. From the junction of the rivers to a village on the plain, called Sikáwáh, is about 8 miles, and 3 beyond we stopped at Kirawí, where we pitched our tents: the day's journey occupied us 8 hours. This village was inhabited by Armenians only. In the whole plain of Músh there are not any Mohammedan peasants intermingled with the Armenians; a fact which would clearly point out this country as belonging rather to Armenia than to Kurdistan: indeed the tent-dwelling Kurds are evidently intruders, and the stationary Kurds, it cannot be doubted, belonged originally to the nomade race.

The Kyayá of the village would not give me any information; to every question I asked he replied only, "How should I know?" but I afterwards found a priest who was more communicative: he confessed to me that the Kyayá was afraid lest he

* Properly Vakf, *i. e.* Permanence; and thence an endowment for religious and charitable purposes.—F.S.

should be known to have communicated anything respecting their affairs. To remove all apprehension on that point, I assured the priest that I never on any occasion disclosed from what source my information was derived: he pretended to believe this, but he showed that he was only half persuaded of its truth. There are twenty families in the village, which is the property of Murád Beg of Khinís. The villagers own about 300 cows, oxen, and buffaloes, 250 to 300 sheep, and twenty brood mares. In wet seasons grain yields ten to twelve fold; in dry, four to five only. The soil is light and sandy, and they do not irrigate it. All their wool is required for domestic use, and they have none to dispose of: they grow linseed for the sake of the oil, used for burning. The winter is not of so long duration as at *Erz-Rúm*; but it is still very severe: snow falls to a great depth; the river always freezes, and loaded carts pass over the ice. The village pays three *Sáliyáneh*s in the year, each amounting to about 5*l.* or 6*l.*; the usual *Kharáj*, or poll-tax; and the share of the produce belonging to the Beg, besides the *Kishlák* (winter quarterage), the heaviest imposition of the whole. These altogether form a load of taxation under which the people appeared very discontented; but the *Kishlák* seemed to form the prominent grievance. The villagers are forced to give winter quarters to ten Kurd families. In the time of the Russian war the army reached *Músh*; and, when quitting it, the Armenians wished to accompany the invaders, but it was not allowed. The Russians were then advancing, and the encumbrance of emigrants with their families did not suit them. At that period the Kurds regarded the Armenians as partisans of the invaders, and made no scruple in plundering and often murdering them. Since the operations of Reshíd Moḥammed Páshá, and of Háfiz Páshá, and particularly since the enrolment of the militia of this Páshálik, the Kurds do not venture to rob openly, and even instances of secret theft have become rare: the effect of the last measure has imposed a moral restraint on this wild race, which is extraordinary when it is considered how few the numbers of the militia are (in this Páshálik not many hundreds), how recently the system has been introduced, and how inefficient the force yet is, from the imperfection of their equipment and discipline.

Near *Sikáwah* is a small hill called *Osp-polur*, which means in Armenian "the mountain round as a lentil." On this little rising ground 'Aláu-ddín Beg, a Kurd chief, made a successful resistance to the government forces sent to destroy the independence he was trying to establish. He was the founder of the family of Emín Páshá of *Músh*; and the event alluded to happened about a century ago, after which the hill obtained its name. In the country I had passed over from *Erz-Rúm* I had scarcely

seen a tree, except in the dale before mentioned, and on the banks of the Chár-Buhúr and Murád Chái, near their union, where some willows and dwarf trees are found: in this feature it bore the general character of all the high table-land of Armenia.

27th.—Quitting Kirawí, we continued along the plain, having the Murád Chái at a short distance on our left. In $\frac{1}{2}$ hour we crossed the river by an ancient bridge of fourteen arches, in so dilapidated and dangerous a condition, that it is unsafe to ride over, and we all dismounted and led our horses. The breadth of the bridge is 208 paces, and it scarce extended at all over the banks: the barometer here showed an elevation of 4123 feet. The Murád does not approach nearer to Músh, which bore about S. from the bridge, whence the river takes a westerly course. Immediately on crossing the bridge we quitted the river, and passed a large Armenian village called Sulúk; thence riding over an extensive tract of meadow-land, in which hay-making was actively going on, in 2 hours we reached the Kará Sú. We forded it near an old bridge, the water reaching to the horses' knees, and the breadth of the stream being about 25 yards. The Kará Sú rises in the range of Nimród Tágh, visible to the eastward, distant 24 to 26 miles, and about 4 or 5 miles below the ford terminates its short course in the Murád Chái: $\frac{1}{2}$ mile from the Kará Sú we came to the village of Chevermeh: here we encamped close to an extensive building in ruins, the residence of the former Páshás of Músh. The distance from Kirawí to Chevermeh I estimated at about 9 miles.

After we were settled in our camp I despatched a Khaváss to the Páshá to announce my arrival, and to deliver a letter from the Ser-asker of Erz-Rúm. I likewise made known my intention of passing two days in the town (to enable me to make inquiries), and requested that a house might be furnished me. Soon after the Khaváss was gone Khúrshíd Beg, the youngest brother of the Páshá, and his Kyayá, in passing by on his return from a tour in the plain, stopped at our tents. He was attended by about ten horsemen. After paying the usual compliments, offering his services, and taking a cup of coffee, he left me for the residence of the Páshá. The Khaváss returned with an officer of the Páshá's to compliment me on my arrival, to know what I stood in need of, and to express his desire to see me as soon as I could conveniently wait on him. He said a house should be prepared for me in the town.

28th.—This morning the Kyayá of the Armenians came to conduct us to the quarter prepared, which we reached after $\frac{1}{2}$ an hour's ride.

Músh is situated in a ravine: as its opening was not in the direction of our encampment, the city was not visible from thence.

The Páshá was at the Musellim's in the town, and sent to welcome me, and to know when I would pay him a visit. I fixed 3 o'clock in the same afternoon. At that hour the Cháuush Báshí (head messenger) of the Páshá came to conduct me to the Seráí (palace), situated at a village called Mogiyunk, rather more than a mile eastward of the town. It was a large quadrangular building, with an irregular tower at each corner, in the same style as the old residence of former Páshás near our camp. This new Seráí was built by Emín Páshá a short time since, and Khúrshíd Beg had a residence close by not yet finished. I was ushered into an elevated Kiosk (Kóshk), over one of the corner towers, which was entered by crossing the terrace of the palace: the view from it was extensive, and its height made it accessible to every air that stirred, and very cool and pleasant. The Páshá was in his harem when I arrived, but he soon appeared, and welcomed me to Mûsh, making the usual inquiries as to my health, mode of reception everywhere, &c. I had seen the Páshá at Erz-Rûm, and this was only the renewal of our acquaintance.

Emín Páshá is of a family which has long held this Páshálik: the founder of it was the 'Aláu-ddín Beg mentioned before (p. 348), since whose time, with few and short interruptions, some member of the family has always governed the Páshálik in a state of greater or less independence. His father, Selím Páshá, was beheaded about 30 years ago by the then Páshá of Erz-Rûm. Emín was at that time a youth of about 15 years of age, and his youngest brother, Khúrshíd Beg, an infant in arms. He has also two other brothers, Sherif Beg of Bitlís, and Murád Beg of Khinís. The Páshá is a handsome man, above 6 feet in height; and the other brothers, though not possessing the same commanding appearance, are yet fine men. All have the reputation of brave and skilful warriors, and, from their rank and personal qualities, the family possesses great influence in the country.

The Páshá invited me to dine with him next day at noon.

29th.—Our quarter in the town was so filthy and confined that before I went to the Páshá I had the baggage sent back to our tents, intending to go thither direct from the Seráí.

At 11 a.m. the Şarráf or banker of the Páshá came to accompany us to the palace; it was mid-day when we arrived. After taking coffee and conversing a short time, the dinner was served; it was in the usual Turkish style, but, except in its abundance, without anything to distinguish it from the repast of an ordinary person. Several of the Páshá's officers were seated with us: this would not have been allowed among Turks of rank, but there is very little ceremony among Kurds.

I took my leave after having invited the Páshá to come next day to my tents, to try the effect of arms with detonating locks,

which he wished to witness. I paid a visit afterwards to Khúrshíd Beg: the conversation turned on horses chiefly; he promised to accompany his brother on the morrow.

30th.—The Páshá came at 11; his suite was neither numerous nor brilliant. He tried some pistols and a rifle, and shot very fairly with both: he approved much of caps, but was particularly struck with the rifle; he could not conceive how so small an arm could carry so far. Khúrshíd Beg made some better shots than the Páshá; he is considered as the most daring and most skilful warrior among the brothers, though all are reckoned brave. They were much esteemed by Reshíd Moḥammed Páshá, and did him good service in his operations against the Kurds. Khúrshíd Beg declined sitting at table with his brother; he said he had never presumed to sit or eat in his presence; but an officer of the Páshá's, and his scribe, vulgar, low persons, were allowed to do both. The Páshá considered the being helped, instead of helping himself out of the dishes, as a very useless ceremony. The Beg dined in another tent on the dishes which were removed from our table.

On the following day I paid the Páshá a visit to take leave, and remained conversing with him for some time; at the conclusion we parted with mutual expressions of regard.

Músh is a town as miserable in appearance as in reality; it contains about 700 Mohammedan and 500 Armenian families. The latter form the wealthiest portion of the population, and on them devolves the whole weight of the annual Sáliyáneh, amounting to about 2000*l.*, the Mohammedans being exempted from it. The present Páshá does not extort money from the r'ayah population, but he is said not to spare the chiefs of the Kurd tribes when good opportunities present themselves for levying money. Husein, who held this Páshálik for a year, and was replaced by Émín, whom he had superseded, was very rapacious, and was said to have been in the habit of levying sums from r'ayahs, nominally in proportion to their supposed wealth, but often so disproportionate as to have reduced many to indigence, and to have obliged most to dispose of all their little superfluities. The Kishlák párah-sí, or the sum paid by the various Kurd tribes in the Páshálik of Músh for winter quarters to the Ser'-asker of Erz-Rúm, is an arbitrary tax, depending on the disposition of the Ser'-asker. The villages of the plain of Músh are, as before observed, all inhabited by Armenians, but beyond the limits of the plain, there are both Kurd and Armenian peasants, sometimes mixed in the same, and sometimes each inhabiting separate villages: however, throughout the Páshálik, the Armenian peasantry exceed in number the Mohammedan; I mean, setting aside the tent-dwelling tribes. There are few articles produced

in the neighbourhood of *Músh* which would be fit for exportation to Europe. The principal products are grain and tobacco, but a large number of horses, horned cattle, and sheep, are disposed of, principally, of course, by the Kurd tribes; dealers come to buy sheep and drive them for sale into Syria, as well as to Constantinople. Some gum-tragacanth and gall-nuts are brought for sale to *Músh*, but they are produced elsewhere. Cotton cloth of a coarse kind is manufactured for the use of the country, and cloths are brought from Aleppo for the consumption of the inhabitants; a very few European manufactures are used, and those to a very limited extent, for in general the people are too poor to purchase any but the commonest articles. The plain may be called a fine one, being nearly 40 miles in length and from 12 to 14 miles in its greatest breadth; it is watered by numerous streams, but in some parts it is stony and arid. It is said to contain upwards of 100 villages, each having from 20 to 40 families; there are some few which have more. The climate is less rigorous than that of *Erz-Rúm*; as much snow, perhaps, falls, but the cold is not so severe; the summer is warmer; indeed, it is often sultry. Our barometer showed an elevation of 4692 feet, or about 1300 feet lower than the plain of *Erz-Rúm*. Grapes are grown in vineyards on the sides of hills, and a great abundance of melons are produced; there is no scarcity of any kind of common fruits. The only trees to be seen are a few planted around the villages: the recesses of the mountain-range on the S. are said to have oak-forests, but I suspect the trees are small. There are several varieties of the oak; one produces the gall-nut, and another manna: the latter is a saccharine secretion which does not possess any medicinal quality, or any peculiar flavour. It is collected by suspending the branches with the leaves on until they are quite dry; they are then shaken; the manna falls off, and is purified by boiling and skimming off the pieces of broken leaves and any extraneous matter: this manna is used for making sweetmeats, instead of sugar. It is a very uncertain product, and is often for a succession of years not to be found in sufficient quantity to be worth collecting: dry seasons are in general favourable; wet, the contrary; but still in the present summer, one of more than an average degree of heat and drought, the crop failed.

July 2nd.—*Emin Páshá* had appointed an escort to accompany me to the next *Aghá*, beyond the limits of his territory on the road to *Diyár-Bekr*, where I expected to meet *Háfiz Páshá*. There were two roads from *Músh*, the one by going down the *Murád* on its right bank to *Pálú*, and then turning to the S. over the mountains; the other by immediately crossing the mountains on the S.: the latter was the least frequented and the most rugged;

the former, the most circuitous route. I was, however, told that, with respect to the state of the road, there was scarcely a choice, and I therefore selected the shortest. I left Músh, attended by Sherif Aghá, with nine Kurd horsemen; he is chief of a tribe named Elmán-lí, which passes the summer in the mountains bordering the plain on the S., and the winter in quarters in the villages at the foot of the same mountains. The first day we reached a village named Kızıl Agháj, situated nearly at the western extremity of the plain, close under the mountains. The village stands on the banks of a copious and clear stream which runs through a ravine and flows in a direct line to the Murád Chái, which we saw winding through the centre of the plain, about 6 miles off. The distance from Chevermeh was about 10 to 11 miles due W. We passed through several villages on our way, and saw many others in the more central and fertile part of the plain.

The village of Kızıl Agháj, though apparently large, contained only thirty Armenian families: the numerous buildings, which give it an appearance of some extent, are occupied by the Kurds and their cattle, as thirty families of Sherif Aghá's tribe winter here. The people complained of extreme poverty, and, to judge by the absence of every kind of furniture from their huts, the complaint is not without foundation. Their land is arid and stony, and will not produce wheat or barley, but merely millet. They however owned about 300 head of cattle and 600 sheep. After we had pitched our tents, Sherif Aghá came to pay his respects and take a cup of coffee. In reply to my inquiry as to the number of his tribe, he said it consisted of 180 families: he stated that nearly 200 years ago seven families only came from the neighbourhood of O'rfah, and settled here, and they had increased to their present number under the protection of the family of Emin Páshá. I think it probable that 100 years might be nearer the time of their arrival in this country than 200, but a century more or less is nothing to people like Kurds, who have no precision in their ideas on any subject. His tribe pays about 480*l.* for their Kishláq. I asked why, instead of paying such a sum annually, they did not build themselves houses; he replied that besides houses, they must have lands from which to collect their hay, and fields to raise their corn and straw, and that the whole plain was already occupied. He might have added that, being shepherds, they could not attend to agriculture without altering their habits, and that at the period when they must make their hay and cultivate their fields they were fully engaged in attending to their flocks and herds in the mountains. There might perhaps be no serious objection to the present mode of giving quarters to the Kurds, if they did not ill-treat the Armenians, if

the sum fixed was a fair remuneration to the peasant for the labour and inconvenience, and if it were paid to him instead of to the Ser'-asker.

Sherif Aghá considered Háfiz Páshá as more powerful than Reshíd Moḥammed Páshá, from the former's having succeeded in subduing the Kharzán Kurds, in which the latter failed.

3rd.—From Kizil Agháj we skirted the southern side of the plain till we reached its extreme boundary in about $\frac{1}{2}$ an hour; we then turned to the S. and ascended the mountains. After reaching the summit of the first range, called Koshm Tágh, at about 6800 feet, we saw two others; the highest, named Antógh Tágh, had a good deal of snow on it, but it does not remain all the summer: this mountain appeared the centre of the group, the ranges on each side being lower. There were dwarf oaks on the slopes of the mountains, but none seemed to attain the size of trees. We descended into a deep ravine, and after a few ascents and descents, not very long nor steep, reached a valley called Shín, in which there are some scattered Kurd houses; they were however all untenanted, the inhabitants being on the hills for the sake of pasture. We encamped on the banks of a stream not far from some Kurd tents, from which we obtained supplies of food. About fifty families cultivate this narrow but pretty valley, and as many as can find room in the few houses which exist, remain there during the winter; they belong to a tribe called Bádikánlí, which consists of 550 families; the principal residence of the tribe is more to the S., and they winter near the Tigris, where those of this valley who cannot find accommodation here in the winter join them. The crops were backward, and the Kurds were irrigating the fields. This tribe refused to submit to Reshíd Moḥammed Páshá, and took up a position in this valley, where it was attacked, and, after having suffered a terrible defeat, submitted: 300 recruits were then given to the Páshá, and the tribe lost all their property and arms, and have been since very much reduced in wealth and importance. Before their defeat, they held this mountain tract in lawless independence, permitting neither caravan nor passenger to pass through it, without having secured their protection by a present.

Sherif Aghá came as usual to take coffee. I inquired of him respecting the Yezidí Kurds. He said they do not pretend to be Mohammedans, and they curse Mohammed. They call Satan Meliki Táúsh (King Peacock). He said they were very angry on hearing the term Sheítán (the Turkish for devil) used in their presence, and he confirmed the account I had previously heard, that, if a circle be drawn round one on the ground, he will not move from the spot until he has obliterated it. He knew nothing of their faith. The Chirágh Sónðurán (Lamp Extinguishers) are quite a dis-

tinct sect; they dress up a log of wood in fine clothes and pelisses, and adore it. When a great man dies they inter all his wealth with his body. The Mohammedans, if they hear of the burial of a chief, watch their opportunity, and open the grave at night for the sake of what is to be found there. The Dújik Kurds are most of them of the latter sect; they are called Kizil-básh (Red-head) by the Mohammedans. There are many Kurd tribes who are Mohammedans; many are Yezidís, and but few are Chirágh Sónduráns.

4th.—Immediately on mounting, we commenced ascending the Darkúsh Tágħ. It took us $1\frac{1}{2}$ hour to reach the highest part of the range, which we crossed at 6490 feet above the sea, and immediately commenced the descent by the most difficult path I ever went over; sometimes it led us round precipitous hollows in the hills; sometimes it came down in a zigzag the face of a nearly perpendicular rock. Our horses, though led, often slipped off the uneven and narrow path, and risked being precipitated into the abyss, perhaps 1200 feet in depth, and it was by great caution alone that a person even on foot could keep his path. Below us ran the river, on the banks of which we had been encamped; there it had an easterly course, but after quitting the valley it turned westward, rounding the mountain up the face of which we had climbed to the S.S.W. Along our path numerous springs issued from the sides of the mountains, all of which are carefully and skilfully conducted by long channels to irrigate fields found on every spot which admits of cultivation; near them a hut was generally to be seen. After a difficult and fatiguing walk of 2 hours (for riding was seldom possible), we found ourselves opposite to the high ridge we had crossed, and scarcely a mile distant from it: we waited two hours for our baggage to come up, fearing the muleteers might require assistance. We then proceeded, winding along the mountains' sides by paths very little better than those just described. In $2\frac{1}{2}$ hours we came down to the stream which we had seen so long in the valley below us; it was called the Kólb Sú (Handle Water), and was a pretty considerable river, reaching to the girths in fording. We crossed it, and waited under the shade of some trees, but our baggage did not make its appearance, and we proceeded on our march. In 2 hours we reached an Armenian village called Agbarún by the inhabitants, but Khanzír (Hog) by the Kurds, beautifully situated in a gorge of the mountains opening to the plain, commanding a splendid view, and surrounded by magnificent walnut-trees. We here procured some food, for which a fast and a ride of 12 hours gave us an appetite. I met here a man belonging to Háfiz Páshá, named Ahmed Aghá; he was remarkably civil, and he it was who ordered us our repast. The

people complained loudly of exactions, and declared they had no longer the means of paying what was demanded of them. It was thought probable that the Kurds left with our baggage would conduct it by another and shorter road to the village we had originally fixed upon as our resting-place, and we therefore mounted again at 5½ P.M., at the same time sending people back to tell the muleteers that we had gone on. At 7 we reached the village of Nerjki, the residence of a Kurd chief, called Hájí Zilál Aghá. He received us very hospitably, and had a supper prepared, which, however, was quite unnecessary after the repast we had had at Agharún. Our baggage did not appear, and we slept in the open air under the trees, the weather being sufficiently warm to render any covering unnecessary. The distance we had come was called 8 hours by the Kurds; we had been 10 hours riding and walking, besides many long stoppages for our baggage; it occupied our loaded horses 15½ hours to Agharún, 1½ hour short of the village we reached. I never met in my travels so dangerous and difficult a pass: the passage of troops could be easily arrested by a small force, and it would be quite impossible to drag artillery over it. Yet I was told the Kharzán mountains are still more impracticable, and that no loaded animal, except a mule, can traverse them at all.

5th.—Next morning early our loads arrived; the horses were too much fatigued to come beyond Agharún the evening before; our people were well treated by orders of Ahmed Aghá, Háfiz Páshá's man. Many of the horses had fallen down the sides of the mountains, but fortunately none were much hurt, and no very serious damage had occurred to our baggage; as by a miracle, the case of instruments had not suffered in the least. Our host was an old Kurd chief; he had resisted Reshid Mohammed Páshá, and his house was in consequence burned; he himself escaped to the mountains, but was afterwards forced to surrender; he was detained as a prisoner at Diyár-Bekr for a twelvemonth, and was then sent to his home and restored to the command of his old district, but his fortunes were ruined, his house destroyed, his dependents dispersed, and his two eldest sons had fallen victims to the climate of Diyár-Bekr. He himself was almost blind from cataracts forming in both eyes, which were nearly matured; he asked Dr. Dickson for a remedy, and was much grieved to hear that he could not furnish one; he was told that an operation would alone relieve him, and to have that performed a journey to Constantinople was necessary; he said that was impossible, it was beyond his means. This Hájí could scarce speak any Turkish, and he used a native of Diyár-Bekr, his scribe, as interpreter. I inquired through him how he was so imprudent as to attempt to resist Reshid Mohammed Páshá, invested as he was with author-

ity from his sovereign. The Hájí replied that neither he nor his fathers were ever subjected to Páshás, or paid taxes to the Sultán, and he could not understand why he should be forced to do so; he had therefore resisted as long as he could. Seeing most of us engaged in writing and reading (for he was always seated near the tents), he asked whether we could all write. I replied that most of our peasantry could do so. He said such an acquirement was an useless one to a man like him: since he had been able to handle arms he had scarce been for an hour in his life without being called on to use them, either in defending the property of himself and his dependents, or in revenging the injuries inflicted on them by their enemies. He remarked, with an evident feeling of regret for his now powerless and humbled station, that in his younger days he had arms, horses, followers, and money. He was now deprived of all these things. Without doubt, his want of power, the excitement of a turbulent life, added to his loss of sight, must render his present position, as compared with his former, anything but agreeable. His wife was a tall masculine woman. I was informed that whenever attacked at home she was always to be found at his side, loading his rifles while he was firing at the assailants. Such is the usual occupation of the warlike dames of Kurdistán, and not unfrequently they take a more active part in the strife. The Hájí derived his title from his grandfather, who had performed the pilgrimage to Mecca, since which, the distinction had descended to the representative of the family. He was near sixty years of age, tall and stout, and in his youth, no doubt, had been a powerful man, and well fitted for the head of a turbulent clan. One of his men had been wounded in the arm by a ball in the Kharzán affair; it was only a flesh-wound, and improved immediately by the treatment recommended by Dr. Dickson.

The Hájí had supplied us liberally with lambs, milk, bread, &c., and I gave him as an acknowledgment an English shawl, and some handkerchiefs printed at Constantinople, much prized among the Kurds: he put them all on his head, and came to take leave the evening before our departure. He apologised for his dry hospitality, as he termed it, and said he had sought in vain for a horse to present me with, but had not been able to find one worth my acceptance. I assured him I was very grateful for his hospitality and attention, and better pleased at his not having given me a horse than if he had.

The position of Nerjki was pretty; it was under the crest of the mountain, overlooking fields which sloped down to the Kolb Sú: there were a good many fruit-trees about it, and in a glen close by, a delightful fall of pure water, which supplied the village and irrigated the fields; the rocks were limestone, and the ground

rough and stony, but wherever cultivation was practicable there the land was sown. The climate is by no means severe; the summer is hot, but tempered by a constant breeze; the winter is short, and much snow does not fall, nor does it lie long on the ground. Its elevation by our barometer only 3550 feet above the sea. The harvest had nearly terminated, and an abundance of common fruits were ripe; both melons and grapes are grown, but had not reached maturity.

I inquired of Ahmed Aghá whether the complaints of misery I had heard from the people were just: he said, yes; they were in a state barely removed from starvation, and could not pay the impositions laid on them. He believed Háfiz Páshá was ignorant of this, and he attributed the heavy drains on the people to Sa'du-l-lah Páshá of Diyár-Bekr. No one, however, dared to state the fact to Háfiz Páshá. Ahmed Aghá's testimony, as that of a Turk and a stranger, and one employed to collect the Páshá's dues from the people, may be received as valid, and he appeared to me a humane man. He had been remarkably civil, and offered to accompany me, and I willingly accepted his offer. The Hájí, too, sent one of his sons.

6th.—Notwithstanding the early hour at which we departed, the Hájí made his appearance in the morning to take a last farewell, with his shawl and handkerchiefs on his head. We mounted at 5 A.M., and, taking a westerly direction, descended to and crossed the Kolb Şú. We then rode over low mountains covered with dwarf oak-trees of several varieties. We crossed another small stream, called the Yák Şú; the climate had now sensibly changed: the oriental plane and *Agnus castus* grew on the borders of the streams, and the cotton-plant was cultivated in the fields. At 10 A.M. we reached the village of Darakol, 2993 feet above the sea, situated on the high bank of a considerable stream, named the Sárúm Şú (Sword Water), the bed of which is very broad, but the stream was divided into many channels: in the sand of the bed I remarked a number of square holes in rows, which were prepared for planting the water-melon, which is said to arrive at very great perfection. The Sárúm Şú, as well as the others we had crossed, flow towards the Tigris, and unite with it in the district of Jezírah, which was called 8 days' journey from hence.

Darakol contains sixty families, eleven of which are Armenian; the latter are poor, and serve the Mohammedans; the village is in the district of the Beg of Ilijeh. I asked whether the Christians had joined the Mohammedans in resisting Reshíd Mohammed Páshá; the Armenians replied they were forced to do so; but Ahmed Aghá denied this, and declared that they were as pertinacious in their opposition as the Mohammedans. The soil

is a whitish clay, and very arid, but there is abundance of water with which to irrigate it. The houses are all built of clay slate. The weather was sultry, and we had several strong gusts of wind, which raised most unpleasant and dense clouds of dust. Some showers in the afternoon relieved us from this inconvenience.

7th.—We reached Pljeh (Warm Spring), our next station, after an easy day's march of about 10 to 11 miles. The sky was overcast, and the air had been cooled by the showers of the preceding day. The Musellim was absent at Diyár Bekr, but his son officiated in his place, and pointed out a pleasant garden for our tents, a mile from the town, with a great number of fruit-trees, and a clear spring issuing from the limestone rock, commanding a fine view of the plain we overlooked. We found also Pljeh to be 3779 feet above the sea. The son of the Musellim spoke very little Turkish. 'Abdí Beg paid me a visit; he was younger son of the late independent Beg, Husein: his elder brother, Beirám Beg, was in exile at Adrianople, and another was major in a regiment stationed at Diyár Bekr. A brother of the present Musellim, named 'I'sa Beg, also came to see me. This Kasabah contains 750 Mohammedan and 213 Armenian families; the latter are not cultivators or owners of land, but are mostly engaged in manufacturing coarse cotton cloth; the cotton used is partly raised in the country, and partly brought from Kharpút and Erz-Rúm; the former is of the growth of Adanah, the latter of Khóí, in Persia. The bázárs are miserable stalls, and scarcely an article of European manufacture was displayed in them. The town contains four fountains and two mosques.

I inquired of 'I'sa Beg whether the people were more contented now than under the rule of the old Beg; he said they now enjoyed tranquillity, which they never did before, and the Mohammedans were certainly happier. As to the Rayáhs, they were more heavily taxed at present, and he did not positively deny their destitute condition; but, he observed, they always complained. They paid last year, as Sáliyáneh, 80*l.*, and they pay Kharáj about 6*s.* 3*d.* per head for every male.

I will relate here what I learned respecting the independent Beks of Hazeró, Pljeh, and Khini, in the Sanjáq of Tírikí.

The first contained about 60 villages, and was governed by Rejeb Beg. He had 300 horsemen in his service, regularly paid and well mounted and armed; besides these, he could collect from his villages about 700 horsemen, and 3000 to 4000 men on foot, armed with a sword and rifle. He was considered as the richest and most powerful of the three Beks. He derived his wealth from his having plundered three or four Páshás of Diyár-Bekr, and various rich caravans; but it is admitted that many acts of the kind, committed by others, were attributed to him. He resisted

Reshíd Mohammed Páshá, was subdued, and exiled to Adrianople, where he still resides. The government collects the revenues of his district and private property, out of which he is allowed 180*l.* per month. The receipts are said to be very considerably more than the pension.

The Beg of I'líjeh was Husein Aghá, who was succeeded by his eldest son, Beirám Beg, now in exile at Adrianople; the father died immediately after his defeat by Reshíd Mohammed Páshá. The Beglik contains seventy villages, and the Beg could command 300 horsemen, and 4000 to 5000 men on foot, armed with sword and rifle. His revenues were considerable, but he spent them all in preserving his interest among his dependents by liberality, and he had no treasure in reserve.

Khini was under Temir Beg, in exile with the rest at Adrianople; he could bring into the field 200 horsemen, and 2000 or 3000 men on foot, armed like the others. His Beglik contained sixty villages: he spent all his revenues among his followers.

These three Beks were always in alliance; occasionally they were at peace with my host, Hájí Zilál Aghá, but most generally at variance. He was less powerful in the number of his followers, but his country being in the mountains was more defensible; and he maintained himself stoutly against his foes. The three Beks were more frequently, indeed for fifteen years almost constantly, at war with Mírzá Aghá, whose residence was at a place called Bánúkah, not far from Hazeró. He had only 100 horsemen of his own, with about 5000 or 6000 riflemen; but, as chief of the tribe of the Silivánlí Kurds residing in his neighbourhood, he could command 500 horsemen more.

In their contests the forces seldom met in open field. The attack of a village being determined on, the confederates met at an appointed rendezvous, and endeavoured to surprise the inhabitants, and carry off everything they could seize. Of course defence was made, and often a rescue attempted, in which many lives were lost. An act of aggression was revenged by a similar one from the opposite party. It was in autumn, after the gathering of the crops, that these plundering expeditions were undertaken, probably because a greater booty might then be expected. The Armenian peasants carried arms, and fought with the Mohammedans; they were treated by their masters on an equal footing. Mírzá Aghá's peasantry were principally Armenians. The only difference observed between the Christian and the Mohammedan was, that the former paid about 7*d.* annually to the Beg, but no other tax was exacted; the Christian now pays to the Sultan 6*s.* 3*d.* Kharáj, besides his share of Sáliyáneh. The Mohammedans are, I believe, in this part of the country, exempt altogether from the Sáliyáneh. These Beks were defeated by

Reshíd Mohammed Páshá, and their residences burnt: on the submission of Mírzá Aghá all the others immediately tendered theirs, considering resistance hopeless.

The people now enjoy the most perfect security, which they never could ensure for an instant under the former system. It is true they pay more; but I should have imagined the exemption from robbery and murder was not too dearly purchased by their present taxes: they complain, however, of the unusual imposition, while they forget the advantages which they have acquired.

Ahmed Aghá, and the son of Hájí Zilál Aghá, left us here, and returned home.

8th.—The Musellim's son came before daylight, wearing on his head a shawl which I had presented to him the evening before, in return for the supplies with which he had politely furnished us. From our garden we passed through the town, situated under lofty limestone cliffs in a ravine full of fruit-trees, and with numerous rills of water rushing down it. The view of the plain is commanding, and the position of the town seemed well chosen; but the houses looked like ruins. The remains of the burnt palace of the Beg showed it to have been a vast building, and a splendid one, considering the place. Our course was west by compass, and we kept close under the mountains, having them on our right hand. After 3 hours we passed a large Armenian village in a broad ravine occupied by fruit-trees, gardens, and cultivated fields, a clear stream watering them and spreading coolness and verdure around. But before and after reaching this village the ground was rocky, and the crops of grain very light; the reapers were everywhere getting in the harvest. After a ride of 5 hours, we arrived at the Kasabah of Khiní, but our baggage was long before it came forward. I estimated the distance to be from 18 to 20 miles. We found a shady garden to encamp in, under fruit-trees, and the Musellim gave orders to the Kyayá of the Armenians to see that we were furnished with everything we stood in need of. The muleteers complained that the animals had not recovered from the hard day over the Darkúsh mountain, and requested I would allow them a day's repose, which I consented to the more willingly as we were in a pleasant place, and the Musellim was very civil.

The town contains 300 Mohammedan and 150 Armenian families. The Kyayá said the Armenians were very poor, that in one way or another their taxes amounted to about 300*l.*, and they had been much impoverished by exactions. On the score of tranquillity they were much better off now than formerly: they did not join their Beg in his struggle with Reshíd Mohammed Páshá, but surrendered their arms when they were demanded by the Páshá. None of the Armenians are cultivators, but some own

vineyards and gardens, and send their fruit for sale to *Diyár-Bekr*, 12 hours distant, bearing S. by W. by compass. They are all engaged in spinning and weaving cotton-yarn and coarse cotton cloths. The *Kyayá* calculated that there were 120 looms in the town, producing annually 30,000 pieces of cloth; they are sold among the neighbouring villages for their consumption, but some are sent to *Diyár-Bekr* as well as to *Músh*. They draw their cotton from *Kharpút* and *Erz-Rúm*. In the town is a most abundant spring of water, the source of a river called the *Anbár Sú* (Granary River). *Anbár** means "a barn for grain." The head of water is confined in a stone-built basin, and the supply issues from beneath several small arches. At the base of one of the sides the water is very excellent and limpid; and the thermometer put into it indicated 57° of Farenheit: as the springs issue from the rock, this should show the mean temperature of the climate; this supposition is the more probable, as the spring in the garden at *Íljeh* gave the same temperature, and that also issued from limestone rock. The people said this water was warm in winter and cool in summer—a pretty sure indication of its preserving an invariable degree of temperature. *Khini* has an elevation of 2924 feet.

The Musellim, *Sherif Beg*, a native of *Diyár Bekr*, had paid me a visit soon after my arrival, and had been remarkably obliging in supplying our wants. I returned his call: his residence was very miserable, but he said he was repairing some rooms in the harem of the old *Beg's* house, which had been burned. I learned from him that *Háfiz Páshá*, on his return from *Kharzán*, went from hence to *Siván Ma'den*, an iron-mine, which he was working by the aid of Europeans; it was situated on the road from this place to *Pálú*. The *Beg* showed me a specimen of the ore: the discovery was not a new one, the mine had been worked before; but the iron, he said, did not prove good, and the enterprise was abandoned. He made some inquiries respecting England, and asked me whether it were better than this country. I said it would not bear a comparison, since it was highly cultivated, and this a desert; there the people were industrious, intelligent, and always aiming at improvement; here they were listless, and never attempted to ameliorate things. He observed the inhabitants were very stupid, and had not introduced 'arabaks, *i. e.* carts, which were used in many other parts of the country, and were peculiarly adapted to these plains. I replied that their indolence was perhaps less owing to their stupidity than to the nature of the government. If a person gained money by superior activity and intelligence, it was seized on by some rapacious go-

* Pronounced *Ambár*.

vernors; so that all motive to exertion was destroyed. He admitted there was truth in the remark; but said the natives, when they became rich, were apt to grow proud and forget their duty; and he cited as an example the conduct of the Begs in this neighbourhood, who were puffed up with their riches, and turned rebels. I replied that, if the government had been a just one, and possessed a proper control, there would have been no motive to become rebels, which was probably an act of self-defence, nor could the Begs have succeeded in becoming independent. He hoped that now the country was subject to the control of the legally-appointed authorities it would enjoy tranquillity, and that prosperity would follow as a natural consequence. His idea that people must be kept poor by oppression to make them obedient, is quite a Turkish mode of keeping subjects to their duty; and this maxim, so long enforced, has reduced the country to the state in which it is. I heard from a Şarrâf of Diyâr-Bekr, who had come hither to recover 250*l.* of the Musellim, for money advanced him to make presents on his appointment, that he expected to receive his money almost immediately, as a Sâliyâneh was about to be imposed on the people for the purpose. Thus they are taxed, not for the real exigencies of the state, but to fee rapacious Pâshâs or their attendants. For the civilities received from Sherîf Beg I made him a suitable present.

10th.—Quitting the town, and keeping a course West by compass, at about 1½ hour, we reached the extremity of the plain of Khinî. We then entered a gorge or pass in the mountains, and emerged from it into another well-cultivated plain; in 3½ hours we reached the banks of a river which came from the north through a rent in the mountains. The stream turned west for about 2 miles, and then to the southward, and passed an Armenian village named Zibeneh, whence it takes the name of the Zibeneh Şû. I was informed the source of this river was in a range of mountains, on the other side of which the Murâd Châî runs, the range being parallel to the course of the river. We descended from the high bank, and crossed the stream; the water was clear, the current rapid; it was at one time confined to a narrow deep channel of 50 feet; at another it ran in several channels over a wide sandy bed. We kept along the right bank of the river: on the opposite side, where it turns off to the south, in a perpendicular cliff of rock rising from the stream, I saw a number of caverns excavated in the rock; they were high above the water, and could not have been reached without a great deal of difficulty. Leaving the river we ascended to higher ground, and continued over an extensive level, covered with large fields of grain, which the reapers were busily engaged in cutting. I saw also many fields sown with maiz. We passed near a village, and afterwards

through a narrow valley, at the opposite extremity of which we came to the village of Pírán, in a ride of $6\frac{1}{4}$ hours, the distance being estimated at 16 to 18 miles.

The village is situated at the mouth of a ravine, overlooking a small but pretty plain. Below the village there are some kitchen-gardens; but we could not find a spot to pitch our tents, and we took up our quarters at the house of Ahmed Aghá, the chief. He had just returned from Arghaná Ma'den, and informed me that Háfiz Páshá was at Kharpút. Pírán contains ninety Mohammedan and eighty Armenian families; it is one of the fifty villages belonging to the Beg of Egil. The Beg had always been subject to the governor of Arghaná Ma'den, and never robbed, as the other Begs were in the habit of doing, and the people consequently had always enjoyed tranquillity. From the appearance of the country, I supposed the people to be well off; the Aghá said they were so formerly, but impositions had increased so much of late, that they were much fallen from their prosperous state. They were obliged to supply 5000 loads of charcoal to the Arghaná mine, which they did at a loss to the village, of about 250*l.* I presumed this was in lieu of the Sáliyáneh, to which the Aghá replied that the Sáliyáneh and every other usual tax must be paid as well. He told me the charcoal was made in the mountains on the north, but the wood was rapidly decreasing. Near the village are the ruins of an Armenian church; one arch standing proves it to have been a massive building, but rough in its construction. I met here two Jews of Aleppo, employed by a merchant of their own persuasion in that city to sell Aleppo manufactures, for which they receive gall-nuts in payment; these are forwarded to their masters at Aleppo.

11*th.*—We rose early, as the day's journey was rather long and mountainous, and there was no intermediate village between this place and the Arghaná mine. We commenced our march by moonlight, at 2*h.* 40*m.* A.M. We passed a very stony defile, and descended to a small stream flowing to the S.E.: an hour beyond it, we came to a more considerable stream having the same course; the road from hence became more mountainous. We arrived on the edge of a steep mountain, directly opposite to the mine, with the Diyár Bekr branch of the Tigris flowing between us; descending this mountain, we crossed the river by a bridge in rather a dilapidated state, and ascended to the mine. We had seen very few traces of cultivation on our road, and those few were near the mine: the hills were of a crumbling whitish sort of clay, without vegetation, and their appearance made our day's ride monotonous and uninteresting. We got to the mine at 11½ A.M., the march having occupied us 9 hours, and the estimated distance being about 25 miles. Our baggage, however, did not

reach until 3 P.M. We were lodged at the house of one of the head miners, who was remarkably civil, there not being any spot on which we could pitch our tents. The elevation is here 3644 feet above the sea.

12th.—From the town we crossed a ravine, and immediately entered a good broad road, a continuation of the military road commenced at Şamşún by Reshíd Moḥammed Páshá, but only continued to the top of the mountain overlooking the plain of Kharpút; the addition was made by Háfiz Páshá, and facilitated the passage over these steep and rough mountains. In about 3 hours we got out of the mountains, and came down to a very pretty plain, crossing a small stream not far from its source; this is the chief affluent of the Diyár Bekr branch of the Tigris; from hence it winds among the mountains, receiving in its course all the drainings of the range we had passed, and before reaching the mine it has been swollen into a large river. Crossing this plain, and entering a narrow glen, we came to the Kurd village of Kizin, situated among trees. The village stands out of the high road, but is much frequented by passengers; we reached it in 6 hours from Arghaná Ma'den, and I estimated the distance 14 to 15 miles. The village contains thirty-five Kurd families, who should be well off. I asked whether they were so. Our host, the head of the village, said the passage of travellers was a heavy tax; they paid about £16 for Sáliyáneh. They had a large stock of cattle and sheep, and there were a great many fields under the plough, so that, not having heard the usual loud complaints of misery, I take it for granted they are in very comfortable circumstances. I had before lodged with the chief, and he recognised me when the circumstances of my visit were brought to his recollection. I found him then, as now, extremely obliging and very willing to supply our wants to the best of his power.

13th.—Descending the ravine in which Kizin is situated, we came in sight of the pretty lake of Góljik, and immediately fell into the military road, which brought us to Kharpút. From the summit of the range of mountains a rich prospect presents itself; the plain of Kharpút is one of the best cultivated perhaps in Turkey, and the fields were waving with good crops ripe for the sickle. A range of low hills, thrown out from the mountains on which Kharpút stands, runs nearly across the plain, and divides it into two portions. At the most eastern extremity the Murád is seen entering it, and, after skirting its edge, soon again quits it through a break in the mountains on the N.E. corner of the plain. The two divisions may be about 50 miles in length; they are very populous, and there is no unoccupied ground; in fact, it is the richest and most populous part of the country. We

reached the Armenian village of *Kónk* in 4 hours, and, while waiting there to allow my *Khaváss* to go forward to announce my arrival to *Háfiz Páshá*, we procured a breakfast. After an hour's halt, we mounted again at 9, and reached the village of *Mezirah* in 2½ hours. The *Páshá* gave us a garden to encamp in, sent us a sumptuous breakfast in the Turkish style, offered tents, furniture, and everything we wanted, appointed persons to attend on us, and, in short, nothing could exceed his politeness and attention.

Mezirah is a small village in the plain about 2 miles from the town of *Kharpút*, lying 3618 feet above the sea; it was chosen by the *Páshá* for his residence, on account of a palace there which belonged to *Is-hák*, a former *Páshá*, who was decapitated by *Reshíd Mohámmad Páshá*. No habitation in the neighbourhood would have been extensive enough to have contained the harem and suite of the *Páshá*, and it possessed the additional advantage of being close to the camp.

During my protracted stay here, all my party as well as myself suffered much from fever, and, despairing of seeing the recovery of all completed while residing here, I determined to move away to a purer atmosphere; on the 25th of July, consequently, I struck my tents, and set off on my return.

My stay here would have been both shorter and more satisfactory, had not sickness prevailed to so great an extent. Not only were all our party sufferers from fever, but the *Páshá* was attacked, and also an agreeable European officer attached to the army. This detracted much from the satisfaction of a visit to so polite and distinguished a person as *Háfiz Páshá*, who did everything to render our stay agreeable.

The *Páshá* had made the most considerate arrangements for providing for our comfort on the journey to *Músh*, and deputed his *Tátár Aghá* to accompany me with two other *Tátárs*, and, encumbered as we were with several sick, we soon felt the advantage of having with us so attentive a *mihmándár*.*

We left *Mezirah* at 6 A.M., and after a hot ride of 4 hours in an easterly direction reached the village of *Alishán*. Four attendants were very ill, and so much worse for the march, that it was impossible to move the next day. In our new position we had escaped some of the inconveniences of *Mezirah*, but the heat was nearly as oppressive; the soil being a whitish clay, the reflection from the sun and the dust were annoying. The *Tátár Aghá* proposed that the sick should be conveyed in *'arabahs*, that we should travel during the cool of the night, and make one march

* Literally "Purveyor;" but *Mihmándár* is the title of an officer of rank appointed to attend upon an ambassador, and provide him with everything he or his suite can want.—F.S.

to Pálú. The air there was represented as pure and cool, and if the sick required rest it would be more beneficial at Pálú than if we remained in the plain exposed to the heat.

Alishán is situated in the plain, having to the S. the road leading to Arghaná, and on the N. the break in the mountains through which the Murád flows in its course towards its junction with the Kará Sú, or Western Euphrates, above Kebbán Ma'den. The village is about 2 hours distant from the river, and contains 100 Mohammedan families. A Sáliyáneh is levied annually of 6000 piasters, or 60*l.*, and besides a tax is paid of 5 piasters, equal to 1*s.*, on every kilo (kíleh) of wheat, and of 3 piasters, equal to 7½*d.*, on the same measure of barley. The kilo here is equal to nine batmáns, or 148 lbs. Grains of various kinds are grown, as well as cotton, and the palma christi for the sake of its oil used in lamps. Each peasant owns a pair of oxen to plough his ground, two or three cows, and a few sheep; the cattle are sent to the mountains to feed during the day, but they do not pick up sufficient to keep them, and they are furnished throughout the year with chopped straw at home. There are neither pastures nor waste lands in the plain.

Before Reshíd Mohámméd Páshá's successes against the Kurds, they often plundered the peasantry, but at present the most perfect security exists.

26th.—In conformity to the proposed plan, in the afternoon two 'arabáhs were procured, and two sick placed in each. Our party mounted an hour afterwards. Rather more than a mile from Alishán we passed through a large Armenian village named Hogasúr, and close under the mountains on our right were several other villages surrounded by trees; we crossed a spur of the range round which the river ran on our left, and descended into a valley in which was the village of Tilkeh: we reached it at midnight, and rested until the dawn was breaking, when we again mounted, and in 4 hours arrived at Pálú. From Tilkeh the plain extends to the banks of the Murád, about a mile distant. We kept along the side of the mountains until we descended to the river, lower down than the town of Pálú, which is situated on the opposite bank. Rising from the stream, we ascended a mountain, on the slope of which were extensive gardens, and traversing them under the shade of fruit-trees, descended again to the river's banks, and after riding for a mile up the stream crossed a bridge, followed the right bank for half a mile, and then mounted a steep ascent to the town, placed high up the mountain under a lofty peak, crowned by an old castle.

The Beg being absent, his brother sent his sarráf (banker) to meet me at the bridge, and to excuse himself for not coming in person, being unwell.

The Beg was superintending the operations at Siván Ma'den, which was said to be 8 hours distant, by a very mountainous and difficult road. I was conducted to the sarráf's house, where I took up my quarters; it was airy, and commanded a fine view of the river. When crossing the bridge, three men plunged from its centre into the stream, and swam ashore; they met me at the end of the bridge, and claimed a present for the exhibition. The height they dropped is about forty feet; the stream is very rapid and about 100 yards wide. It is not considered safe to pass over the bridge on horseback: the buttresses (the only remains of a more ancient structure) have been united with wood, roughly and by no means solidly put together. Our barometer at the bridge showed an altitude of 2819 feet; at the town of Pálú 3292 feet. From the town up the stream, the channel is compressed into a narrow space, by mountains rising abruptly from its banks. In some parts its breadth does not exceed 30 yards, in others it is three times as much. I saw a man drive an ass through the river under our residence, but from the numerous turns he made it must require a perfect knowledge of the ford to enable a person to cross it without risk. Four keleks, or rafts, passed down the river while I was at Pálú; they were composed of boughs, supported by inflated skins, and charcoal was stacked on them. A man at each end with a paddle directed the raft. On the day after our arrival our sick rejoined us; they were all much improved in health, and in a state to continue the journey on horseback.

The town of Pálú contains 1000 families; 400 Armenian and 600 Musulmán. The former are employed either in manufacturing or in general trade; 200 looms are worked, producing cloths from native cotton, and there is a dyeing establishment and a tannery. The Armenians complained of the heavy taxation to which they are subject. The Moḥammedans are the sole owners of the gardens, and cultivators of the land; a few vineyards, however, belong to Armenians.

The direct road to Erz-Rúm is closed by snow during three months; the distance is 8 caravan days and 42 post hours. The course of the river is E. and W. I estimated the distance from Kharpút 36 miles due W. by compass.

29th.—On leaving Pálú we passed through the town under the castle, and over the crest of the ridge, from which we descended by a gradual slope into an extensive and well-cultivated plain, studded with numerous villages surrounded by orchards and vineyards. Our direction was N.N.E. by compass. In 1½ hour we came to the Armenian village of Hoshmat, the estimated distance 5 miles; here the Erz-Rúm road branches off from that we followed, and takes a northerly course. On the opposite side of

the plain bearing N.W. is a large Armenian monastery at a village called Habáb; the plain on the N. is bounded by a low range of mountains, beyond which runs the Perez Sû, rising in the Sanjâk of Khijî (in the Páshalik of Erz-Rúm), and falling into the Murâd 3 hours below Pálú; the river was said to be a considerable one, but fordable in summer.

We left Hoshmat at 8 A.M.; in 2 hours we came to the extremity of the plain, and after an ascent of an hour reached Mezirah. A short distance from the village the chief persons of the place came out to meet me. Our baggage and sick had preceded us, having marched through the night, and on my arrival I found the tents pitched under the shade of fruit-trees.

The situation was very pleasant; it commanded a view of the valley and the mountains on the opposite side, and in the distance the lofty summits of the Dújik range, capped with snow, were visible. The cool temperature was delightful, and our convalescents experienced great benefit from the change. Mezirah is situated at 5245 feet above the sea.

The village contains fifty or sixty Musulmán families, and I should suppose them to be well off by their style of dress and cleanly streets, which were all swept before the houses, and were unencumbered by heaps of filth, as is usually the case.

A letter was brought to me from the Beg of Pálú, inviting me to visit the Siván mine; it was written in French by some of the Europeans there, and, although addressed to Russian travellers, was evidently intended for me. I wrote a reply in French, and excused myself on account of my having advanced too far on my journey.

The ore is a rich iron; the director, a French engineer, named Chatillon, fell ill in the autumn, and on his way to Constantinople died at Şámsún. Since then the works have been suspended.

30th.—We left Mezirah about $\frac{1}{4}$ to 5 A.M., and descended the mountain on the side of which it is situated; for a short time we followed the valley, then crossing it, we ascended the mountains on our left, and passed over a rough track strewn with immense boulders; on the summit were springs of water and pastures. We descended from the ridge, and a little way down came to some tents, after a march of $3\frac{1}{2}$ hours from Mezirah. The persons encamped here belonged to the village of Chevli, whither we were going, and they reside here during the summer for the sake of the pasture the mountains afford. From the tents we descended to a narrow valley, having trees and meadows in its bottom with a rill of water, but not any habitations. As we advanced the trees became more abundant, and we finally entered on mountains covered with oak. I observed the usual varieties; that which produces the manna, and that which bears the gall-

nut, but none of the timber was large. This wooded region is lofty, and the ascents and descents both frequent and steep. Our descent from thence was gradual, the wood continuing until we approached the village, which we reached in $3\frac{1}{2}$ hours from the tents; but our baggage-horses came up long after us. The distance from Mezirah I considered about 20 miles E. by compass.

Chevlí is the residence of the Beg of Jabákjúr, or Chibákchúr, a district belonging to the Páshálik of Diyár-Bekr, which city was said to be 24 hours distant. The Murád-Cháí was $2\frac{1}{2}$ hours off to the S., and is fordable in summer at particular places. The road to it from hence is good, leading down the valley; but after crossing the stream the route to Khiní passes over very difficult and steep mountains, a continuation of the range of *Músh*. Chevlí is situated in a narrow ravine, evidently formed by water, and on the banks of a small stream. The village contains 150 families; half are Kurds and half Armenians; their general appearance did not give the idea of prosperity. I received a visit from the Beg, who was not a very intelligent person. He commands sixty villages, mostly small, many being inhabited by not more than from five to ten families. He said they had been always oppressed by more powerful neighbours, such as the Páshá of *Músh* and the Beg of Khiji, both of whom had often plundered them. He could only collect in his beglik about 100 horsemen and 1000 footmen armed with rifles. When attacked by a superior force, they fled to the mountains, taking with them all the property they could carry away, leaving the rest at the mercy of the assailants. They had been deprived of their best mares, and did not now possess any fine horses. This state of insecurity no longer exists, but the effects which have resulted will continue to be felt to a distant period. The people pay as *Sáliyáneh* 20*l.* to 30*l.* five times a-year, and as usual, complained of heavy taxation. The Armenian portion of the population are the principal cultivators of the soil. Barley and grain enough are not raised for the consumption of the inhabitants: hay and firewood, however, are obtained in abundance from the neighbouring mountains. Upwards of 1000 head of cattle are owned by the villagers collectively, consisting of cows, oxen, buffaloes, sheep, and goats. The poorest class gather gum tragacanth in the mountains, which, as well as the wool of the goats, petty traders from Diyár-Bekr and Pálú come hither to purchase. The oaks in the neighbouring mountains usually yield a crop of manna once in three years. It was expected this season, but, although the weather had been favourable, no manna had been found.

I went down to the river's side to bathe, and left my watch on the bank. As soon as I discovered the loss, 3 hours after, I informed the Tátár Aghá, who applied to the Beg. A child con-

fessed to have picked it up, and an elder person had taken it from him. A promise was given that it should be restored, but an hour elapsed, and no watch was brought. The Tátár Aghá returned to the Beg, and threatened that, if the watch were not forthcoming immediately, he would bind him hand and foot, and send him by a khaváss to Háfiz Páshá. This threat had the desired effect, and in five minutes the watch was produced. The incident shows how much the authority of the Páshá is respected, even in this wild part of the country, where neither he nor his troops have yet appeared.

1st August.—The day's march being long and very mountainous, our heavy baggage was despatched at midnight, and we followed at 5 A.M. We descended the ravine to the plain, at the opening of which the stream of the village is joined by a more considerable one coming from the mountains we had traversed before reaching Chevli. The plain was very stony, and a good portion was covered with low underwood. After crossing it we entered among the mountains, and in our course passed through a pretty valley, with wood and rich meadows, and a river which runs into the Murád-Chái. The stream came from the N.E., and is called the Gúnluk-Sú, from the name of the district in which it rises. From this valley we made a long ascent to the village of 'Ashághah, or Lower Pakengog. The distance I estimated 11 miles, which occupied us $3\frac{1}{2}$ hours, on a general compass bearing of E. by N. Our baggage took another road, which, though more circuitous, was less mountainous, as it wound through the valleys. The situation of the village was beautiful. On all sides were mountains clothed with oaks; and to the S. was seen a loftier range, which, as it was said always to retain some snow throughout the summer, could not be less than 10,000 feet in height. The village contains fifty or sixty Kurd families. Seated on a green sward close by a cool spring, and surrounded by trees, we were served a most excellent breakfast.

From this place we kept gradually ascending, and in about 2 hours reached Yókáreh, or Upper Pakengog, distant from the lower between 5 and 6 miles. Our barometer here showed an elevation of 5204 feet. We found our tents pitched under some walnut-trees remarkable for their size; and many others of equal dimensions, scattered about the picturesque glen in which the village lay, added to the beauty of the scene. The inhabitants were absent at their summer pastures, but our Kurd escort brought some of them down, and after a little difficulty we procured the necessary supplies. These people are wild, and under very little control. When the Tátár arrived who was sent forward to order some preparation to be made, a savage-looking grey-bearded Kurd refused to supply anything, and, on receiving

probably some abuse, said he would collect the villagers and shoot us all like pigs. This insolence was represented to the Tátár Aghá, who ordered the fellow to be bound, and threatened to send him to Háfiz Páshá. The man denied what had been attributed to him; and, after he had been thus detained for two or three hours, intercession was made for him, and he was released on a promise of more civil behaviour to travellers in future. About a month previously, the Beg of the lower village attacked the inhabitants of the upper, and obliged them to pay him about 75*l.* as a ransom, besides having slaughtered some cattle to feast his people, and having carried away many more. The chief of the village requested the Tátár Aghá to allow his son to accompany him to Háfiz Páshá, to represent the conduct of the Beg of the lower village. The two villages are perpetually at war, and the upper being the least populous suffers proportionably.

When at Chevli, in walking through the village, I happened to stop before the house of the Kádí to look at a mare standing there. He soon after sent to say that, if she pleased me, he would make her a present to me, which I declined. The Imám of this village represented to the Tátár Aghá that the Kádí had taken the mare from him, besides a gun and a sabre, because he had killed an Armenian ten years before. The Tátár Aghá promised on his return to oblige the Kádí to restore the property. These facts will give some idea of the unsettled state of this part of the country, and of the singular and loose way in which justice is administered.

2nd.—We quitted the village before 5 A.M., and immediately, by a rough road, commenced ascending, in a general S.E. direction, a mountain-range covered with small oak. In $\frac{3}{4}$ of an hour we reached the summit, and rode on it for about $\frac{1}{2}$ an hour more. I observed there a great deal of obsidian, mostly in very large pieces, and the earth was a deep red colour. Our descent was for a long time through a wood: emerging from this, we continued down the slope of the mountain, which was stony, until we came to the Tákhtah Kúpri-Sú, or river of the wooden bridge. It flows from the northward, and falls into the Murád-Chái about 3 hours below the place where we forded it. The stream runs in a ravine with steep rocky sides, and its banks are covered with trees. The current was rapid, the water girth-deep, and in breadth it might be 30 yards. After leaving the river the ground was of the same nature as in approaching it, but in the plain below the soil was rich and well cultivated. We saw two small villages, but did not approach them; and at the termination of the plain we came to Boghlán. We had been $4\frac{1}{2}$ hours from Pakengog, and I estimated the distance about 12 miles. To the left of our road, among the low mountains bordering the plain, I observed a peak

which appeared in form like the crater of an extinct volcano. It was lower than the mountain on which I saw so much obsidian, and several miles distant from it.

The village of Boghlán, governed by a Musellim, contains sixty Kurd families. The Musellim provided a good breakfast; and his two sons, handsome Kurd youths, attended on us. We took it in a chamber contiguous to a mosque, in which was a small reservoir of cool water supplied from a neighbouring spring. From Boghlán I was accompanied by a son of the Musellim. We ascended through a valley, passed a small village, and soon after reached the crest of the range, from whence we obtained an extensive view of the plain of Músh, and the Murád winding through it. After a ride of rather more than 2 hours we arrived at the monastery of Chángeri.

This monastery is frequented by numbers of Armenian pilgrims. It is dedicated to St. John the Baptist, called in Armenian Surp Karabed, part of whose body is said to be contained in a case placed on an altar in the church. It owes its high reputation for sanctity to the possession of this relic, which is believed to possess the power of effecting miraculous cures. The church is ancient, and is said to have been built A.D. 304. It is a massive stone structure, without any pretension to architectural beauty, and very gloomy on account of the smallness of the windows. Around the spacious court, in the centre of which the church stands isolated, are numerous rooms and stables, as well for the accommodation of the inmates as of pilgrims. The walls enclosing the buildings are lofty, solidly built, and well calculated to protect the convent against the attack of an enemy. During the Russian war the monastery was taken possession of by Kurds, who remained in it for several months. They plundered the treasures of the church, and burnt or threw into the water all the books and manuscripts. After the treaty of Adrianople, a *fermán* was issued by the Sultán ordering the restitution of the stolen property, but most of it had been destroyed, and very little was ever recovered. Several bishops reside here: they appeared people of uncouth manners and no learning, and complain that the pilgrims are much less numerous than formerly. The monastery owns two villages: the revenue derived from them must, however, be small; and its chief dependence is on the contributions of devout visitors. I everywhere heard persons speak of the great sanctity of the place, and the merit of performing a pilgrimage thither; and I was therefore surprised to hear the complaints of the priests as to the diminished number of the devotees.

I had heard such exaggerated accounts of the richness of the monastery, the number of rooms devoted to the use of visitors,

and the handsome treatment they received from the priests, that my disappointment was great at finding that I could not obtain a decent room to lodge in. I was shown the best, but all were dilapidated and filthy; and I preferred taking up a station on a small terrace shaded by trees, in the neighbourhood of a cool spring: it was outside the monastery, on the slope of a hill. Parts of the building were undergoing repair, and a great number of masons were employed: the work was done in a very substantial way, in cut stone. Females do not appear to be excluded from this monastic retreat, for I saw several within its precincts. An annual fair is held here on St. John's day, and is frequented by people of every religion, sect and nation, to be found in the surrounding country. This year a quarrel arose between a Kurd and a Christian: blows were exchanged, weapons drawn, and theft attempted; but on the occurrence of the dispute the people conveyed their goods within the walls of the monastery, and although there was much alarm and confusion, very little property was lost. The progress of the fair was, however, interrupted; and Khúrshíd Beg, Emin Páshá's brother, came to restore harmony between the Kurds and the inhabitants of the monastery. The Armenian who owned our hired horses had, through imprudence, a relapse of his Kharpút fever: he tried (with faith, I believe) the efficacy of St. John's body, but he did not experience any salutary effect, and was forced again to apply to the more certain remedies of Dr. Dickson. Our cook was so devoutly disposed and so earnest in his devotions, that it was with difficulty he could be withdrawn from the church to prepare our dinner.

The keepers of our horses took them to graze at a village belonging to the monastery, and allowed them to stray into a field of clover which had been cut and carried. While the men were lying down to rest they were attacked by the villagers, and two of them were seriously injured by blows from heavy clubs. The Tátár Aghá having already gone forward to Músh to announce my approach to the Páshá, I sent another Tátár to seize the villagers, but the offenders had escaped. I applied to the head of the convent, who produced two innocent men, declaring that the culprits had fled to the mountains. I insisted that they should be found by the next morning, or I would take him with me to Emin Páshá.

3rd.—Only one man was this morning brought forward, and the sufferers said that, although present, he did not actually strike them. Finding the priests unwilling to give up the delinquents, on mounting I obliged the chief of the convent to accompany me. After $\frac{1}{2}$ an hour's ride he promised, if he were permitted to return, to send the guilty persons to Músh within two days. I with-

out hesitation consented to his proposal, but the promise was not kept. In 2 hours we reached Ziyâret (Place of Pilgrimage), situated in the plain, a short distance from the foot of the mountains. The village is inhabited by forty Armenian, and gives quarters to twenty Kurd families in winter. After quitting Ziyâret we directed our course to the Murâd, about 3 miles distant, and forded it where it is divided into two channels: the first was only knee-deep, the second reached to the horses' shoulders. A little earlier in the season it could not have been fordable. Where the two channels were united the river was 100 or 120 yards wide: the water was muddy and the current slow. Almost immediately after crossing we came to the village of Shekirân, containing about sixty Armenian, and affording *ķishlâķ* to between twenty and thirty Kurd families. On our road after we crossed the stream which runs by Kizil Aghâj, we passed close under the village of Pakengog: both of which were before noticed on the road to Kharpût.

Before reaching Chevermeh, our old encamping station, I was met by a man sent from Emîn Pâshâ to offer the house of Khûrshîd Beg for my accommodation. I declined it, however, preferring our tents; and signified my intention of encamping at Arishbân, the village nearest to the Pâshâ's Serâi. We reached this after an extremely hot ride of 4 hours from Ziyâret, from whence I estimated the distance full 12 miles, as the road was good, and we left our baggage far behind. I dismounted at the house of Maḥmûd Beg, the chief of the village, who is a relation of Emîn Pâshâ. While waiting the arrival of our tents and baggage, an excellent breakfast was served. Maḥmûd Beg had that morning arrived from Bitlis with Sherîf Beg, who had been sent for by Emîn Pâshâ, and Murâd Beg was hourly expected from Khinîs. The brothers were assembling to consult on the new position Emîn Pâshâ found himself placed in by the transfer of his Pâshâlik to Hâfiz Pâshâ; and also to collect their resources in order to make such presents to their new superior as would secure to Emîn Pâshâ his re-appointment. Soon after my arrival the Tâtâr Aghâ came, accompanied by the Khavâss Bâshî of Emîn Pâshâ, sent to welcome me. The former insisted, on the part of Hâfiz Pâshâ, on Maḥmûd Beg's showing me every possible attention.

Two hours after our arrival the baggage came up, and our tents were pitched near the village: we found the weather unpleasantly sultry during the day; the nights were however agreeably cool, but we were tormented by mosquitoes.

I interchanged visits with Emîn Pâshâ, who received me with great cordiality. Sherîf Beg also paid me a visit, and insisted on my taking up my quarters at his residence at Bitlis, whither he

expected to arrive as soon as I should, for he intended to return home as soon as *Emín Páshá* should have set out for *Háfiz Páshá's* head-quarters, and he would make the journey in less time than I should.

7th.—We this day quitted *Arishbán* for *Bitlis*: immediately after mounting we were joined by a person belonging to *Sherif Beg*, who acted as *Mihmándár*, but we soon discovered the change and felt regret at being deprived of the services of the *Tátár Aghá*. We took an easterly course along the southern edge of the plain of *Músh*. In 3 hours we came to a halt at the village of *Kháss-köi*. We made this short march in order to divide the distance in such a way as to reach *Bitlis* early the third day. The road from *Arishbán* was over a dead flat, and the distance between 9 and 10 miles on a bearing of S.E. by E. Near the foot of the mountains the soil is gravelly, but it improves as you approach the river in the lower parts of the plain. I observed several fields of unripe grain, notwithstanding the summer had been dry and hot. The village contains 150 Armenian, and gives *Kishláḱ* to forty Kurd families; there was a very large stock of hay collected for their use. It is curious to see the immense ricks which are usually placed on the flat roofs of the houses, and give the first notice of one's approach to a village. The hay is twisted into bands, and made up into large bundles, which are neatly stacked in the form of a truncated pyramid, without thatch. The peasants complained that the *Kishláḱ* kept them in a state of poverty; but, were it not for this heavy imposition, they would be very comfortable. Last year they had to pay about 80*l.* to provide fodder for the cattle of the Kurds, the stock laid in having been expended from the unusual duration of the winter. Two brothers of the *Kyayá* of the village were killed by some of their guests in a dispute. The murderers were taken to *Erz-Rúm*, and the *Ser'-asker* would have executed them, but the surviving brother dared not to appear against them lest he should himself be murdered for having demanded their blood. The house of the *Beg* was the only one in the village which had two stories; its external appearance however did not promise much comfort within. The *Beg* had gone to *Músh* to attend on *Emín Páshá*, to whom he is related, and his son came in his stead to pay his respects.

Three hours distant, across the mountains, which here border this plain on the south side, is situated an extensive plain which belongs to the *Beg* of *Kharzán*, but he resides about 26 hours beyond. Before the late defeat of the *Kharzánlis* by *Háfiz Páshá*, the *Beg's* son said that I could not, without danger, have encamped on the spot where I was, but must have availed myself of the protection of a house, as the Kurds of *Kharzán* were con-

stantly crossing over the mountains to plunder and carry off cattle at night. The slaughter among the Kharzán Kurds he represented as very great. Two-thirds of the population are Armenian, but they did not take part in the contest. The Kharzánlis were divided among themselves. The Beg and his party sided with the Páshá, and the inhabitants only of the more mountainous districts resisted him: had the whole population been united my informant thought the attack would have failed.

We were encamped close by a place where the grain was collecting previous to its being trodden out; and 'arabahs, or carts, drawn chiefly by buffaloes, were constantly arriving loaded with it. I observed that the wheels of some of these turned on the axle, whereas in general the axle is firmly fixed on the wheel, and revolves with it. I thought I had discovered an unusual degree of intelligence in these peasants, and I remarked the difference of the carts to a farmer; he replied that those which I considered superior were cheap, only used by the poorer peasants, and that they did not last above two or three years. The others could be used for twenty, by merely changing the axles. The wheels of the latter were strengthened with iron, and had iron tires, and cost about 5*l.* a-pair. I called his attention to the easy draught of the cheaper carts, of which he seemed quite aware, and I pointed out how they might be improved by strengthening the axles with iron, and making iron boxes to the wheels, but the man said they had no smiths among them. The good wheels are brought ready made from Erz-Rûm, and fixed to the carts, which are constructed on the spot. The common carts are also made here; and I think the man said they cost about 15*s.*: nothing but wood is used in them, not even an iron nail.

I here saw the person who was collecting the Kharáj, or poll-tax; and he told me the entire amount for the whole Páshálik was 460 purses, 2300*l.* I cannot judge from this of the exact number of the Rayah population; there are various grades, each paying a different sum, and I do not know how many there may be of each class, but at a guess I should estimate the male Rayáh population at 12,000 above 14 years, below which age Kharáj is not exacted. The number of children is very remarkable throughout the country; scarcely had we arrived in a village before they were seen issuing in swarms from their underground habitations; and most of them were either naked or only half-clothed with rags: in this village I think there were more than usual. If bad food, scanty clothing, a severe climate, and epidemic disease, added to the total deprivation of medical aid, did not cause a more than ordinary mortality among the children, the population ought to increase at a rapid rate.

8*th.*—We started by moonlight to avoid the heat of the day:

in 1h. 20m. we reached the village of Irishdir, and then crossed the *Kará Şú*, which was knee-deep and 15 yards wide. A quarter of an hour beyond it, we passed Ahkevank, and forded a small stream which falls into the *Kará Şú*, to which we came again in another half-hour; and, riding along its banks, soon after passed Nokh. In $\frac{1}{2}$ an hour more we reached Marnik, also close to the river: all these villages are Armenian, and, except Nokh, large; the distance from *Kháss-kó'i* to Marnik I estimated about 9 miles. Leaving Marnik, after a short time we crossed a spur, thrown out from the main range, extending far into the plain: we afterwards came down upon a pretty extensive marsh, the waters of which flow into the *Kará Şú*, but the river itself only skirts the marsh: we rounded this, and rode across a flat with meadows, corn-fields, and melon-grounds, when we again forded the *Kará Şú*, and entered the village of *Mushákshir*, which is inhabited by fifty Armenian families, and is the property of Sherif Beg of Bitlis. The distance from Marnik I estimated at 6 miles, on a bearing of S.E. by E. by compass. We encamped to the eastward of the village near a threshing-floor, in a very hot and exposed situation, which we chose on account of its distance from the water, to avoid mosquitoes. Opposite us was the range of the *Nimrúd Tágh*, and more southward, on the other side of a marshy plain, the Kurd village of *Núrshín*.

The *Nimrúd* range runs nearly N. and S., but at its southern extremity is terminated by a cross range, called the *Kerkú Tágh*, running E. and W. The sides of the latter are green with underwood; its summit is flat, and resembles the truncated cone of an extinct volcano. The road ran through a hollow between the *Kerkú Tágh* and the chain of mountains which borders the plain of *Músh* on its southern side, and which continues in an easterly direction along the lake of *Ván*.

9th.—We left *Mushákshir* early in the morning, and went round the marshy plain intervening between that village and *Núrshín*; in about $\frac{1}{2}$ an hour we crossed for the last time the *Kará Şú*, here coming from the N., and skirting the base of the *Nimrúd* range, the ravines and valleys of which it drains. In an hour more we were opposite to *Núrshín*, but did not approach it nearer than a mile. It is inhabited by Kurds, and covers an extensive site, the houses being dispersed among gardens and fields. Its appearance from a distance is more cheerful and pretty than most of the villages in this part of the country. From thence we ascended a gentle slope between the two ranges of mountains, and passed a small village with a ruined *khán* near it, called *Káfir Borg*, or *Borj* (Infidel's Tower), and inhabited by *Mohammedans*. Some *Yezídí* Kurds here overtook us; they came from their tents on the *Nimrúd Tágh*, and were going to Bitlis. One

among them, who spoke a little Turkish, said they were not Mohammedans, and drank brandy, and from this circumstance he appeared to claim fellowship with Christians. It is a very usual opinion among Mohammedans to consider the great privilege conferred by Christianity to be a liberty to indulge in intoxicating liquors, and I have often heard Turks express surprise that we used them with so much moderation. At about 2 hours from Núrshín, when opposite to the eastern extremity of the Kerkú range, we turned to the S. down a narrow valley, which by a gradual descent led us to Bitlis. To the point where we made the turn our course had been E. On either side were lofty mountains, and a stream flowed in a ravine with perpendicular rocky sides (apparently basalt) cut in the bottom of the valley. In two places the water fell over ledges of rock which ran across the ravine, but the volume of the stream was now too small to give any grandeur to these cascades.

In the course of our descent to Bitlis we met several large kháns of a very solid construction, but in a ruined state, and so near each other, that I was at a loss to imagine the reason, until I learned that in winter in this pass the wind often rushes through the valleys with fearful violence, and, when accompanied by snow, endangers the lives of persons on the road, for advance or retreat are then equally impracticable. The kháns were built to afford refuge to caravans or travellers caught in these storms, and the peasantry were bound to resort thither on the approach of bad weather, to be at hand as well to give assistance as to furnish supplies during the detention of persons, and to open a way through the snow-drifts for their release. The ruin and neglect of such useful buildings and customs, is a proof of the decay of trade and of the indifference of the local governors to the welfare of the people. The rock in the valley through which the road passes was nearly as soft and light as pumice, and the horses had worn in it deep channels; it was evidently of volcanic origin. We were 2h. 20m. from the turn in the road to Bitlis, and I estimated the whole distance from Mushákshír at 15 to 16 miles. Our Kurd guide went forward to announce our approach, and before entering the town, I was met by the Şarráf of Sheríf Beg, who conducted us to the Beg's Seráï.

The valley of Bitlis runs nearly N. and S. One ravine branches from it to the W., another to the N.W., and a third to the E.; at their common point of junction with the main valley, the town is situated at an altitude of 5156 feet above the sea. In the centre of the space it occupies, rises an abrupt rock, on the summit of which are the ruins of a castle, the residence of the former Begs of Bitlis: at its eastern base lie the bázárs, while the streets lining the banks of the streams which flow through the

valley and ravines, and extending up them, give an irregular form to the town, which covers a considerable area, on account of the gardens interspersed among the houses in the ravines. Bare limestone mountains rise on every side to a very considerable elevation, perhaps nearly 2000 feet above the valley, and the bottom of the ravines and valley are filled with gardens and orchards irrigated by numerous streams and springs. This antique-looking city, placed in so remarkable a situation, the severe character and great height of the mountains, and the cheerful vegetation of the valleys, viewed from the residence of Sherif Beg, combine to form a prospect as singular as it is interesting.

The castle-rock rises perpendicularly from about 50 to 60 feet, and the walls 30 feet above the summit, which they completely encircle; they are solidly built and loopholed, and before the use of cannon, the place might have been considered impregnable. The only access to the castle is by a narrow and steep passage, defended by several strong gates. Within the external wall the whole is a mass of ruins, and the plan of the residence can scarce be traced: it is untenanted except by one or two poor families, who have sought shelter in some outhouses which have escaped the general wreck.

The bázárs are extensive and apparently well stocked; they are entirely terraced over, and the roof is used as a highway for foot passengers. The road through them runs between the shops, and is narrow, scarcely permitting more than the passage of two persons abreast, and, from the crowd which thronged the bázárs, it was difficult to make one's way through them; they are very obscure, the light being admitted only by means of perforations made for the purpose at intervals in the roof. Two good kháns afford accommodation to wholesale traders: the streams are crossed by single-arched bridges, which are sufficiently numerous to afford a ready passage from one part of the town to another.

The population consists of 2000 Mohámmedan and 1000 Armenian families. There are three mosques with minarets, and about twelve tekiyehs or convents, belonging to the Howling Dervishes, of which sect this city would appear to be the principal seat.

The houses are all flat-roofed, and every building in Bitlis is of stone; the material used is a volcanic rock, which from its soft texture is easily worked. The blocks are squared and are cemented with mud; a few only of the houses have the joining of the stones pointed with lime.

The Beks of Bitlis were always powerful enough to preserve their independence until they were subdued by the father of Emin Páshá, since which time, the Beglik has been attached to the Páshalik of Músh. Eighty villages are said to be under the

command of Sherif Beg, and his territory forms therefore about one-third of the whole Páshalik. During their independence the Begs struck a small copper coin which is still current at Bitlis.

The place is certainly of high antiquity, but I could not obtain any precise information as to its history or founder. An Armenian, who was reputed to be learned in the annals of his country, was introduced to me; he said he had read the history of Bitlis, but could only remember that its ancient name was Salamsur, and that of its founder Iskender, a Pagan king.

The residence of Sherif Beg is situated on a short spur thrown out towards the S. from the mountains, and running half way across the mouth of the eastern ravine. The level summit of the spur is occupied by the building, from the walls of which the ground slopes abruptly: on the W. it overhangs the town, on the E. the ravine which unites with the main valley under the southern termination of the spur. This elevated position, upwards of 300 feet above the valley, ensures a cool breeze in summer, when the town below is oppressed with heat.

This palace was erected by Sherif Beg, and has been finished about two years: it is a rude and extensive building. In the centre is a quadrangular court, with a copious fountain of fine water, placed on the side facing the entrance: three sides are devoted to the use of the male portion of the Beg's establishment, and his own sitting and receiving rooms; the fourth to the harem. The ground floor contains the stabling and storehouses. In that above are the rooms, which are all entered from an open gallery overlooking the court. The windows are on the outer walls of the building, and command extensive views. In the centre of the rooms are bare flag-stones, and on either side is a raised sort of bench, on which are placed felts with cushions. A sitting-room, with another within, usually occupied as the receiving-rooms of the Beg, were allotted to our party. Soon after our arrival we were served with a good breakfast, at which the Beg's son, a child of four or five years of age, attended by an Armenian, gravely seated himself and played his part. The Beg himself had not yet arrived from Músh; his Kyayá was absent, and the attendants and hangers-on were few; so that none of the bustle usually found in a Kurd Beg's residence was now perceptible.

The heat of the sun was disagreeable when it beat on the side of the house we inhabited, and the flies were numerous and troublesome; but in the shade the air was cool. The nights were brilliant, the atmosphere remarkably clear, the temperature agreeably cool; and when the sun set it was a pleasure to mount upon the terrace where we always slept. The heat is not oppressive except in situations inaccessible to the breeze which usually blows down the valley. In winter the snow falls or drifts into the

valleys to so great a depth that the communication with other places is always difficult, and often interrupted.

I was told that the Beg never took his horses out of the stable for four months together. Common fruits and vegetables are in great abundance; but none indicating a hot climate are found at Bitlis itself. Though but little grain is produced in the valley of Bitlis, yet the neighbouring districts yield a superabundance, and the price is very moderate: indeed all the necessaries of life are cheap.

On the evening of Friday, a little before sunset, several parties of the Dervishes in different quarters began to howl to the beating of drums; their tone at first was extremely loud, but after a time it became fainter, until it ended in a low moan, like that of a person quite exhausted. I think the whole time these fanatics were howling must have been full two hours. Every sound was distinctly heard, though the Tekiyehs were distant; and the wild discordant cries and monotonous beat of the drum were far from agreeable.

The second day after my arrival at Bitlis, Sherif Beg returned. He had quitted Músh the evening before: travelling by night, he got to Núrshin in the morning; in the afternoon resumed his journey, and reached his home a little before sunset.

We had dined before the Beg arrived: his first visit was to our apartments; he chatted while a repast was preparing; after having partaken of which we repaired together to the terrace to enjoy the cool of the evening.

The next evening we conversed again with the Beg on the terrace. The following morning I departed early: he came out of his harem to take leave, and I drank coffee with him. I was treated very hospitably by Sherif Beg; every want was supplied; and I had some difficulty in persuading him to accept a present of small value. I promised, however, to send him a pair of English pistols and some fine powder on my return to Erz-Rúm, a present which I knew was quite irresistible.

In point of trade Bitlis is the most important among the places I visited, yet still its commercial transactions are far from extensive. The consumption of foreign articles is small in quantity and limited in variety. No coffee but that of Mokhá is used, which is brought from Baghdád. A small quantity of East India indigo is required for a dyeing establishment, which is generally supplied through Erz-Rúm or through Persia.

Unbleached British calicoes are sold to a moderate extent, and our shawls to a less: besides these some woollen cloths, printed calicoes, and gay-coloured silks and satins, are purchased, and a small quantity of refined sugar. I believe the above-enumerated articles will comprise the whole list of foreign goods. The prin-

cial consumption is in the manufactures of Damascus, Aleppo, and Diyár-Bekr, and coarse cotton cloths manufactured here largely, and imported also from different parts of the country, for the purpose of being died red. This place is celebrated for the brightness of the colour produced; and the cloths thus died are exported to distant parts of the country, as well as to Georgia. A few European calicoes are likewise died; but the great bulk are native. The manufacture of short heavy calicoes is very extensive throughout the whole country. The cotton used is mostly grown in the districts of Shírván to the S., and Kharzán to the W.; but it is imported likewise from Khói.

Although the raw cotton is as dear as in England, and although the yarn is spun by hand, and woven by the most ordinary process, yet the calico is sold cheap; and I doubt whether the British manufacture could be made to compete with it, on account of the low quality, the great weight of cotton used in the latter, and the great expense of a long land-carriage on an article so bulky and at the same time of so little comparative value. The production of calicoes amounts to several hundred thousand pieces; but a tolerably exact account cannot possibly be obtained. The madder used in dyeing the red colour is produced in Shírván. Galls are brought to Bitlis for sale from the Kurdistán mountains to the eastward and southward. A considerable quantity of gum tragacanth may be collected on the mountains. There are two plants;* one with a white and the other with a pink flower. The former yields a white gum, which is exported to Europe; the latter, a brown kind, of very inferior quality, which is used entirely in Turkey.

The gum is collected by persons who traverse the mountains for the purpose: they clear away the earth from the roots of the plants, and make incisions in them, from which the juice exudes, and in a day or two hardens, when the people return to gather it. The occupation affords but a trifling remuneration under ordinary circumstances, and few people follow it, except such as can do nothing else, as old men, women, and children; but when the demand is great, and the price unusually high, other labourers take to the pursuit, and then an immense quantity is collected, for the plant is most abundant on all the mountains.

13th.—On quitting Bitlis we took a northerly direction, and ascended the valley by which we arrived. As we emerged from it into a plain, we reached Rashwák Khán, sometimes called Alemání Khán, from a village of that name near at hand. The khán is in a ruined state and unoccupied; but the remains show that it has been a magnificent building of the kind. It is very spacious, and of solid structure, but through neglect its vaulted roofs have fallen in, and rubbish encumbers the chambers and passages.

* *Astragalus Tragacantha*.—F.S.

As we proceeded along the plain we had on our left the Kerkú Tágh (the cross termination of the Nimród Tágh), and on our right a continuation of the range of mountains which bounds the southern side of the plain of Músh. Although cut by the valley of Bitlis, the range continues in its original easterly direction, skirting the shore of the lake of Ván. Before descending to Tadván we came to a hollow way, in which a long line of isolated rocks, called the Camels of Tadván, protrude above the soil. I had been informed at Bitlis that they resembled exactly a string of those animals; but they proved only misshapen rocks, as unlike camels as any other living thing; and a superstitious belief in the silly tradition with which they are connected, could alone make any one perceive the similitude. The fact is, the parts of the rock which have connected these fragments have yielded to the action of the atmosphere, which the fragments themselves have resisted, although they are a soft lava, such as is found in descending the valley of Bitlis. In a $\frac{1}{4}$ of an hour we reached the village of Tadván, which is situated near the lake, and is inhabited by forty Armenian families. Close by the village a promontory juts out into the water, on which are the remains of a small fort. The distance from Bitlis to Tadván is about 10 miles, on a bearing a little E. of N. I found the water of the lake quite salt: the beach was sand and shingle; and I could not help fancying myself on the sea-shore. A great deal of pumice was visible; the pieces were very small in general, and rounded, so that they appeared like cork balls. I found likewise some obsidian on the shore.

Our baggage not arriving, I sent some horsemen to discover what had become of it, and they returned with the information that it had gone forward; we therefore found ourselves obliged to follow it, and at 3 P.M. remounted. We passed round the bay of Tadván, and at the head, saw the village of Ortál, situated about a mile from the shore. After quitting the lake we crossed a ridge of the mountains, and descended into the Gúzel Dereh (beautiful valley), a name it well deserves. Picturesque mountains, magnificent trees, a luxuriant vegetation, and clear rills of water, here combine to form as enchanting a scene as an admirer of nature could wish to see.

On the shores of the lake the village of Elmáli (apple ville) is placed; but, leaving that at some distance on our left, we ascended the valley, and passed the village of Kurd Khán, hid among the trees, and, after rising above the wood, the village of Sarách, close under the main range of Arjerósh Tágh. We then crossed a ridge and came to a plain with several villages, around which were fine walnut-trees. We stopped at Avatak, which appeared the largest village on the plain, and learned that the conductors of

our baggage had taken from thence a guide, and had proceeded onwards. Although the night was fast approaching, and we and our horses were fatigued with our double march, we had no remedy but to proceed. We went down to the lake, and afterwards continued along a rocky road, hanging over the water, sometimes high above the lake, at others near its margin. On the way we met the guide returning who had conducted the baggage, and we took him with us in order that we might be certain of not missing it. About 9 P.M. we reached the village where the muleteers had stopped, named Garzit. It was too late to prepare a supper; and after a cup of tea we lay down to rest without troubling ourselves with pitching tents. The muleteers said that at every village the people told them that we were in advance, and had left word that they should follow.

This deception was practised to prevent our quartering ourselves on them, as they did not feel certain they should receive payment for what they would be obliged to supply. Our people had continued their march until it was dark and their horses knocked up; and they believed we were before them. The distance from Tadván was about 18 or 20 miles. The direct distance from Bitlis by the road which the loaded horses had taken was called 10 hours. After the long ride of the previous day I should have been glad to have given ourselves and animals a rest; but the village was a miserable one, very filthy, and there seemed to be a sad want of necessaries; so we were forced to go on. Garzit contains about ten or twelve Armenian families, and, as well as another small village, called Surp, is situated in a sheltered plain of small extent, surrounded by mountains which recede in a circular form, with the lake in front: the position is very delightful, and it was with regret we found ourselves constrained to proceed.

14th.—On leaving the village we quitted the plain, the road running along the slope of the mountains, which were covered with shrubs and dwarf oak,* and the lake was beneath with its deep blue waters: this part of the road was pretty. We passed a boat loading wood. She was close in-shore, with her stern a-ground, while her head was afloat. Soon after this we saw the village of Dedebekeh, near the lake, but at some distance on our left. We, however, did not approach it, but struck inland, ascending the mountains through a ravine which led us over the crest of the range into a narrow valley, which we descended until we reached the plain of Göl-li and the village of the same name. It is inhabited by a mixed population of Armenians and Kurds, and contains thirty or forty families. The plain was tolerably well cultivated, and there were some pastures around the village. The

* Whence its Armenian name.—F.S.

lake is about $\frac{1}{2}$ an hour's walk distant, but hidden from sight by a low range of intervening hills. The Aghá holds his post under Khán Mahmúd: he resides in a roughly-constructed though lofty building, without any external windows, and only one entrance: the terrace of the house had a parapet round it, and the walls were loopholed. These indications of security had become needless since Khán Mahmúd had gained a predominant influence in the country, as he maintains an excellent police. We met here a Khaváss of the Ser'asker of Erz-Rúm returning thither; he had with him a man belonging to Khán Mahmúd, who volunteered to return with me, and to act as guide, in which capacity he had served the Khaváss.

15th.—After crossing the plain of Gól-lí we ascended the mountains, which were clothed with dwarf oak, and rode along a ridge overlooking the lake from a great height. We saw a line of bold headlands, with bays between, stretching out to the N.E., and lofty mountains rising at their back. We went inland behind them, and, descending into a valley, passed through a village named Narnigas; and we saw another lower down, called Peleú. We ascended again, still with the lofty range on our left, and after accomplishing this ascent we looked down on a narrow valley, having at its head the Armenian village and monastery of Khanjaik. By a steep descent we reached the stream in the valley below the village, and were met there by the head of the monastery, who expressed regret that we had not passed by his residence, as, hearing of a stranger travelling, he had prepared some refreshment. A traveller can seldom afford to turn back; and I could not make up my mind to do so in this instance, as we had still a good portion of our day's journey before us. In our progress along the valley we passed several villages, and a caravan resting on its way from Ván to Bitlis. Our course down the valley had been about S.; but where another crossed it we suddenly turned eastward, and reached a plain of some extent running down to the lake. We halted at the village of Norkukh; but, on inquiry, learning that a boat plied between the island of Akhtamar and a village on the shore, we determined to proceed thither with the idea of visiting the Armenian monastery, situated on the island. From Norkukh I sent forward our guide to inform Khán Mahmúd that I should visit him next day on my road to Ván, and I gave the man an introductory letter addressed to the chief by Sherif Beg of Bitlis. We then again mounted, and, crossing the plain, which was marshy as it approached the lake, we came to the shore near the village of Ishkend; but proceeded from thence along the beach to another, called Akavansk, which faced the island of Akhtamar, and was the property of the monastery. We encamped on the beach, with extensive orchards in our rear and the lake in

front. The superior was here superintending the conveyance (to the stores on the island) of the produce of the lands of the monastery, for which purpose a boat of no promising appearance was employed. She came from the island in the morning, and returned in the evening with her cargo, making only one trip in the day; it would have been therefore necessary to pass the night at the convent. The uncertainty and delay which attended the movements of this frail bark, from her clumsy construction and her depending entirely on the wind to effect the passage of between 3 and 4 miles, deterred me from visiting the convent. The bishop came to see me: he spoke no Turkish; and as he was, besides, a dull ignorant man, I could not have expected to derive much information from him, and I felt little regret at giving up my visit. The bishop complained that Khán Maḥmúd extorted a good deal of money from the establishment; but he praised his excellent police and the security enjoyed within the jurisdiction of the rebel chief, previous to whose time he said the country was in a most unsettled state.

Before sunrise next day a messenger arrived from Khán Maḥmúd to request me not to give myself the trouble of coming to see him, as he would be absent on a shooting excursion. Khán Maḥmúd is the son of an independent chief of a district called Mukush, which is situated on the southern side of the Arjerósh mountains. The family possessions had descended to the son of an elder brother; and Khán Maḥmúd and other brothers had acquired for themselves by the sword the possession of upwards of 100 villages, which had belonged to the Páshalik of Ván. They had made frequent incursions over the Persian border for the sake of plunder; and by these, and the revenues derived from their villages, they had managed to amass a considerable treasure, which enabled them to attach to their interest a numerous body of desperate followers, aided by whom and their own bravery, they had defied the power of the Páshás of Ván and the vengeance of the Persian government. Latterly Khán Maḥmúd had thought it prudent to tender his submission to the Ser'asker of Erz-Rúm through Is-hák Páshá of Ván, and had sent thither a brother for the purpose: he had been well received by the Ser'asker, and dismissed with honour, and he was now on his way back.

Khán Maḥmúd never ventured into the town of Ván, although occasionally he had interviews with Is-hák Páshá at the villages near; but at these he was always accompanied by a party of 500 or 600 armed dependents. The brothers possessed many strong places, the chief of which was the castle of Maḥmúdiyeh, where Khán Abdál, the next brother to Khán Maḥmúd, resided. It had been in their possession only a few years. Pashvansk Kal'eh,

the residence of Khán Mahmúd, was situated under the main range of Arjerósh, about an hour distant from Akavansk, where we were encamped, but it was in a valley, and out of sight.

16th.—I here dismissed the man belonging to Sherif Beg, of Bitlis, and the guide who had accompanied us from Gól-lí was appointed by his master to continue as our escort to Ván. He preceded us to Vastán, as he said 800 men were assembled there in anticipation of a threatened attack on Khán Mahmúd by the Beg of Jezirah, and he wished to inform them who we were, to prevent the possibility of an insult. We left the village of Akavansk, and kept close to the lake: in about an hour we had reached the edge of the plain, bounded by a spur thrown out from the main range, which separated this plain from that of Vastán. Along the ridge of the mountain lay our road: at the further extremity was placed the castle of Vastán in a commanding position: we passed close under it, and then descended into the plain. The village stands on its edge below the castle. The plain was extensive and pretty; the main range, a continuation of Arjerósh Tágh, but called here Erdosh Tágh, rose precipitously from it, without any branches at its foot: its height was probably 4000 feet above the plain, there being some patches of snow on its summit. Villages surrounded by orchards occupied all the higher parts of the plain along the base of the mountains, and lower down were cultivated fields and pastures. The troops collected by Khán Mahmúd were quartered in these villages; but we neither saw nor heard anything of them. Near Vastán was a burying-ground, in which was a handsome Mohammedan tomb built of sandstone; the inscriptions in Arabic characters were quite fresh; in style of architecture it resembles similar buildings found in various parts of Turkey, at Erz-Rúm, Kaisar, and Akhlát: I presume them to be of the age of the khalifs: none I ever saw were so well executed or in so perfect a state of preservation as this.

A long point running out into the lake forms the Bay of Vastán. This point seems to be the result of the continued depositions from a large river called the Anjel Chái, which rises in the mountains above Mahmúdiyeh Kal'eh. Beyond the point a sandbank extends a great distance, and it appears probable that the bay will be at some time completely filled up, as it is already very shallow. We continued along the edge of the water till we reached a village, which we passed through, and, crossing over the spit of land, came down upon a small village in the valley in which runs the Anjel Chái. The valley was narrow, the soil a deep alumine; and, although the channel of the stream is in general not more than 15 to 20 yards broad, it appeared deep. We rode along the banks to a ford, in crossing which the water

reached to the girths. On the other side was a larger village than the preceding. From thence our road lay over bare limestone hills sloping to the lake. We passed another village, and then came to a small verdant valley in the shape of a theatre: at the head was an aqueduct, supported by a wall in some parts, which carried a stream of water to the city of Ván by an open canal. This useful work is attributed to Shemírám, or Semiramis, the reputed foundress of Ván; in some maps it has been converted into a river under the name of Shemírám Sû. The springs are at the head of the valley. The canal skirts the gardens of Artemid, and serves to irrigate them and to turn some mills on its way to Ván. We passed along the upper edge of a long line of orchards, which border the lake for about a mile before reaching the village of Artemid, which is placed above them, and at their further extremity going towards Ván. The inhabitants were now in their garden-houses, and the village was nearly deserted. We encamped in an orchard on turf, and under the shade of fine large fruit-trees. The quantity of common fruits produced here is considerable, and a great many apricots dried in the sun are exported from hence. We were $7\frac{1}{2}$ hours from Akavansk to Artemid, but, having made a good many stoppages to take bearings, I did not estimate the distance at more than 15 miles. I inquired whether there were any inscriptions, but was told that none existed; and there did not appear an edifice of any antiquity. I was told that 'Abdu-r-razzáq Beg, the brother of Khán Mahmúd, was in the village on my arrival; but, on sending to express my wish to see him, I learned that he had already departed. The Khazínahdár* of Is-hák Páshá paid me a visit: he was going to Ván immediately, and I sent by him my compliments to the Páshá, requesting to be accommodated with a garden to pitch our tents in. The Musellim soon after came to pay his respects: he was a native of the Hekkáriyeh country, but had been resident at Ván for the last sixteen years. He told me Júlámerk was 40 hours from Ván, and S. of it was the Hertóshí district, governed by a chief with the title of Hertóshí Amír Aghá. The capital was named Sháh Tágh,† 3 days' journey from Júlámerk. The road to the latter place was quite safe.

The Páshá's khazínahdár returned in the evening with the compliments of his master to say that the house and garden of his doctor were at my service.

The village of Artemid is populous; but I omitted to record the number of its inhabitants.

16th.—In the morning early the Muhurji (signet-bearer) of the Páshá came to escort me to Ván, and to compliment me on his part. We descended from Artemid to the shores of the lake,

* Treasurer.—F. S.

† King's Mount.—F. S.

and rode along them. Just before reaching the town, I was met by some mounted officers of the militia and a file of six soldiers, who preceded me to the residence of the Páshá, just outside the walls of the city. He requested me to call in passing his residence on our way to our quarters. Being unprepared for a ceremonious first visit I would fain have excused myself, but I saw it was likely to give offence, so I complied with the request. I was received in an open pavilion, in which was a fountain and a large tank of water outside with two swans in it. After a short visit we proceeded to the garden allotted to us, and took up our residence in a pleasant and airy kiosk (*kóshk*), pitching a tent for the attendants.

Soon after we were settled in our new abode, Tifúr Beg, son of the Páshá, came to compliment me on the part of his father, and to say that he would call in the afternoon. I requested he would not give himself that trouble, as we were tired with our journey, and as I proposed paying my respects to the Páshá in the morning.

17th.—I went at 10 o'clock, and was received in the open pavilion. The Páshá was polite in his inquiries and offers of service: he is a man of about sixty years of age, a native of Ván, from which his travels had not led him to any distance, never having even been to Constantinople: his manners and behaviour indicated benevolence of character. He inquired as to the relative position of Great Britain and Hindústán, and seemed to think they were contiguous. He asked the extent of our dominions in India, and our military force there and in Great Britain. With regard to his own city he, like others, attributed its foundation to Shemíráam. He said the lake at one time extended to the mountains; an assertion unsupported either by fact or tradition. If such even were the case it must have been before the foundation of the city, or Ván could not have existed on its present site, and there is every reason to believe it must always have occupied the position it now does; the report may therefore be regarded as one of those idle tales so common in this country. The Páshá was very curious to know whether any of us could interpret the arrow-headed inscriptions. The residence he occupied was extensive, and was built by his grandfather: it was of sun-dried bricks, but had stood uninjured by half a century. The houses and walls are all built of earth, which is so tenacious that they last fifty or sixty years without repair. The Páshá politely offered us the use of the bath in his town residence. The son of the Páshá, Tifúr Beg, was present, and seated himself at a sign from his father: it is very unusual to see this among eastern nations. While I was with the Páshá, a messenger came to announce the approach of Sultán Aghá, chief of the tribe of Haidaránlí Kurds. I took occasion to ask the Páshá what sort of

a person he was, and expressed my intention of visiting him, as I was anxious to see a distinguished Kurd chief in his own camp. The Páshá replied that, as he would return my visit next day, he would bring Sultán Aghá with him, that I might form my own opinion on the subject. On quitting the palace I met Sultán Aghá, just arriving with a suite of attendants.

18th.—The Páshá came, accompanied by Tifúr Beg and Sultán Aghá, both of whom he motioned to be seated in his presence. The Kurd chief said that in taking the road I proposed, I should pass by his tents, where he should be happy to see me. He was a good-looking middle-aged man, and his tribe reputed rich and powerful. He seemed under great restraint before the Páshá, and soon retired with Tifúr Beg to the garden. I made some inquiries of the Páshá respecting Khán Mahmúd; some of the particulars have already been stated. He had agreed that the Rayahs in the districts commanded by himself and his brothers should pay to the Sultán, Kharáj and the usual taxes which until now had gone into his own exchequer, that the fixed quota of men should be furnished to the regular force and militia. He had a year or two before allowed an agent of the Porte to take a census of the population of his territory. What other concessions the Páshá of Erz-Rúm would demand was not yet determined on, but it was understood that if all were acceded to, Khán Mahmúd and Khán Abdál would be named Muselims, *i. e.* governors of their respective districts. I mentioned the refusal of Khán Mahmúd to receive me: the Páshá said he could only account for it by supposing that he wished to avoid suspicion of any connexion with Sheríf Beg, whom he knew Khán Mahmúd did not esteem highly.

We had a good deal of general conversation, which is principally recorded in what follows respecting Ván.

The great charm and boast of Ván are its gardens, which cover a level area of about 4 miles, by 7 or 8, situated between the city and the mountains to the eastward. This plain is occupied by vineyards, orchards, melon-grounds, and some fields, and nearly the whole population of the city resides there in summer. The principal roads are lined with houses, and the whole appears like an extensive village. The gardens are all surrounded by mud walls, which interrupt the view, as the ground is a dead flat. Through the main avenues streams run, which are bordered by willows, and even at mid-day one may ride in an agreeable shade.

I visited the Kójah Básh, or chief of the Armenian community, to see the style of living of that people. He had lately built a new house, and may be supposed, from his station, to live as well as any other Armenian of the superior class. The house was spacious, but very humble in its style as well as in its furniture:

both he and his brother lived in it, and each had a family. From an elevated kiosk there was a view extending for a distance over orchards and vineyards. There did not seem to be any want of necessaries about the establishment, but nothing that I saw indicated the least approach to refinement or luxury.

The women reside in their own apartments, where they cook and perform all the menial duties. No servant is kept, except perhaps a man to look after a horse or a mule, and assist his master likewise in his business. This mode of living is not peculiar to the Armenians of Ván, it is usually adopted throughout the country; and it is only at Constantinople that refinement and luxury have made inroads into these primitive and uncivilised manners.

I visited the principal Armenian church: externally it resembled any other house. The body of the edifice was a large flat-roofed apartment, supported by pillars, or trees roughly smoothed with an axe, and lighted by a sort of skylight; it was both dirty and obscure. Attached to it was a newly-built recess, in which was placed the altar, and it was as gaudy as carving, gilding, and glaring colours could make it. Passing through the gardens in their width we reached the edge of the mountains, and on the face of a large limestone rock were shown a long inscription in the cuneiform character. A flat surface had been cut to receive it, which might be from 10 to 12 feet high and about 6 broad, and at the base was a confined landing-place. There was no approach to it in front, but it was reached by climbing over a part of the rock at the side, which had been worn so much that it was extremely difficult to pass without slipping down. The rows of letters are separated by a fine line cut in the rock; the letters themselves are about 2 inches in size, and well formed. The lower part of the inscription has been much defaced by mischievous visitors, and could not, I think, be copied. The upper part appeared as fresh as if lately cut, and was uninjured by the weather. To copy it the aid of a ladder would be required. The rock is a hard, compact limestone.

19th.—A person came on the part of the Páshá to conduct us to the bath: it was small, scarcely heated, and the linen supplied was very scanty. Afterwards a breakfast was provided, and we walked through the Seráí. The summer receiving-room was in a court below—a sort of open saloon, with a fountain in the centre: it was painted gaily, but was old and dilapidated. The harem, which I had wished to have seen, was not open. The winter receiving-room of the Páshá I entered: it was well furnished in the usual style. The Seráí is extensive, but not kept in order, and resembled the houses of great Turks in general, of which size is the peculiar characteristic rather than neatness or conve-

nience. We walked from thence through the city: the streets are narrow, dirty, and ill paved; the external appearance of the houses in general mean: there was, however, to be seen occasionally a residence which showed that it had once belonged to a man of consequence; but the general aspect of the city indicated decay. The *bázárs* were confined and the shops ill furnished, and I scarcely saw an article of European manufacture: there was, however, an abundance of Venetian glass beads, with which the Kurd females ornament their persons. The supply of fruit was superabundant.

We entered the town by the O'rtah Kapú, or middle gate, and passed out by the Tabríz Kapú, or eastern gate, the nearest to the Páshá's residence outside the town. There is a third gate at the opposite extremity of the city, called Iskeleh Kapúsi, or Wharf Gate—a name given to a village on the shore to the north of the city, where the boats used on the lake load and unload. The city is defended by a double wall and ditch, the inner wall being flanked by irregularly-shaped towers; but the walls would only be an effective defence against cavalry or musketeers.

Between the Tabríz gate and the Páshá's house, judging from the appearance of the ground, there must once have been a suburb. Issuing from the Tabríz gate, we went round the abrupt termination of the rock, to its sloping side at the back of the town, in order to look at an arrow-headed inscription. Two arched recesses are cut in the rock near each other, both about 10 feet high and 6 feet deep: the sides of one are perfectly plain, but on the left side of the other an inscription has been cut, which resembles that already described, although it is much shorter, and the lower portion has been almost defaced.

20th.—The Páshá had been absent from Ván for two days, to meet Khán Mahmúd at a neighbouring village, in order to arrange some details respecting his submission. On his return the Páshá sent me an order to visit the castle: we passed at the back of the rock. Beyond the arched recess before mentioned is a shallow cave, in which three square tablets have been cut to receive inscriptions; two were high up beyond the reach of a man, and were in a state of perfect preservation; a third was low down, and was nearly defaced. All were in the same style as that already mentioned. We proceeded to the N.N.W. end of the rock, where is the only entrance to the castle. A part of the wall here is very ancient; the stones are immense blocks worked, but irregular in shape, and they are fitted to each other like the stones in a Cyclopean wall. This is very probably part of the fortress which Tímúr, on capturing Ván, found so much difficulty in destroying, and its solidity makes the conjecture plausible. The first gateway had neither gate nor guard. Passing through it, we

mounted by a steep ascent; and some way up, came to a gate where a guard was stationed, before passing which, the order for admission was examined; thence, accompanied by a file of soldiers, we proceeded to the opposite or E.S.E. end of the rock. Here we dismounted, to descend a little way to examine the caves, the great objects of curiosity. The first is a natural cavern in the face of the rock towards the town, about 25 feet by 18: its walls have been flattened, but the roof remains in its primitive state. The external front of the cave has been smoothed, and the door cut in a regular shape. Within the cavern, on the side opposite the entrance, are two small chambers, and one on each side right and left. The doorways are regular, and appear at one time to have been built up. In one of the chambers a brick wall had been built all round, about 6 feet from the floor, and thence an arch was thrown over. This was opened by Temir Páshá, in the hope of finding a treasure; but I was informed that nothing was discovered but the rubbish lying in a heap in the cavern.

I obtained a light and examined all the chambers, but could not discover either letters or paintings on the walls. Among the rubbish I found some fragments of coarse pottery, attached to which was a woollen stuff, mixed with something like bitumen. In one of the small chambers were bones, among which Dr. Dickson discovered some of a boy and of a woman. The second cave was less artificially worked, both inside and out; and there were but two inner chambers: in the floor of one was an excavation, which from its size and shape was doubtless intended for the reception of a corpse. The examination of the caves left me in no doubt of their having been used as sepulchres. After viewing them we mounted to the summit of the rock, on which is placed the I'ch Kal'eh, inner castle or citadel; it has a separate wall and entrance: part of the wall is ancient, probably of the same age as that below. The buildings within are all in a dilapidated state and uninhabitable; but a few men are quartered here. On a platform is a battery of guns of various calibres, which are fired on the occasion of the Beirám, or the arrival of a Páshá. There is an immense number of guns on different parts of the works, but most of the pieces are of very antique shapes and unserviceable, and scarcely one among the whole has a carriage in an efficient state. Within the outer wall, although outside the citadel, is a copious spring of water. The external works are partly stone and partly sun-dried bricks, and are so dilapidated and so unscientifically constructed, that as a fortress it is quite contemptible. There were said to be 120 artillery-men for the service of the guns, commanded by a captain: the men usually follow their trades in the town, and have no uniforms; but they are to receive clothes from Constantinople.

The rock on which the castle is built is a long, narrow, isolated mass, rising out of the plain. It runs in length S.S.E. and N.N.W. The south-western face is perpendicular, but the north-eastern slopes rapidly to the plain. The S.S.E. end terminates abruptly, and the N.N.W. affords the only access. The highest part may be about 300 feet. The rock is about half a mile in length at its base: in breadth it varies; but at the summit, where the citadel is placed, it cannot exceed 100 yards, although from the inequality of the surface it is difficult to judge correctly. The whole rock is of a hard compact limestone. The town lies at the base of the perpendicular side, and a wall encloses it, uniting with the rock at both ends.

Were the works and guns in good repair and efficiently manned, no force that could be brought against it would probably be able to reduce the place.

In returning, I passed by the Iskeleh gate into the town, and rode through its whole length. The people relate wonderful stories of the former flourishing condition of Ván, one of which states that a man was stationed a whole day at one of the city gates, and, counting only 14,000 horsemen pass through it, lament was made for its fallen greatness. I inquired of a native nearly seventy years of age, whether he recollected the city more populous or more extensive. He replied no; but that the people were richer and trade more active and prosperous in the time of a Páshá named Dervish, who maintained his independence of the Porte. He beat in succession three Páshás sent to depose him, but was at last conquered by Sert Mahmúd Páshá, aided by the Páshás of Erz-Rúm, Kárs and Báyzid. Since that period Ván had gradually declined in prosperity. This event happened about twenty-two years ago, fourteen years previous to which Dervish Páshá had governed Ván. The population of the city, including the gardens, is estimated at 5000 Moḥammedan and 2000 Armenian families. In the country throughout the Páshálik the Armenians outnumber the Muselmáns. An immense number of the former, natives of the Páshálik of Ván, migrate to Constantinople, where they employ themselves as labourers, porters, artisans, and sometimes sarráfs. Latterly a register of them has been kept by the chief of the nation, and the last year showed 31,000 absentees. About 3000 annually return to their families, and as many to Constantinople. They obtain high wages there, which enable them to support their families, and by living sparingly to accumulate something with which, after a few years, they return to enjoy themselves at home until their savings are spent, when they go back to the Capital to earn more. This practice shows how redundant the population must be as compared with the means of employment; and since the population is thin, for

extensive tracts of fine land are without inhabitants or cultivation, it is evident something is defective in the administration of the affairs of the Páshálik, or migration need not be resorted to.

Insecurity on account of the Kurds is one impediment to agricultural labours; but it is hoped that evil is in gradual progress of being remedied. The Kishlák is about to be abolished in the district between Ván and the Bendi-máhi Sú, which falls into the N.E. corner of the lake. This, if carried into execution, will be a great relief to the peasantry of that portion of the Páshálik. After quitting the town, I called to take my leave of the Páshá: the caves were the subject of conversation. The Páshá urged me to stay a little longer, as he wished to give me an entertainment: I excused myself on the plea of my long absence from Erz-Rúm, and the time I should still be on my journey. The Páshá said that Sultán Aghá would certainly have reached home before I passed by his camp. I took leave of the Páshá after thanking him for his polite attentions. He is, from all I could learn and see, a worthy old man, but unfitted from his age and want of intelligence, for being Governor of a fine but uncivilised Páshálik, which, since the new order of things commenced in Turkey, should be administered by a chief of activity, energy, and enlightened views.

The trade of Ván is very inconsiderable, and the consumption of European goods insignificant on account of poverty's preventing people from indulging in their use. The position of Ván, however, its soil, climate and indeed every circumstance, favours its being an important place of trade. Bad government and want of security are the only impediments to the development of the natural advantages it possesses. There are about 500 looms employed in manufacturing coarse calicoes from the cotton imported from Persia: these are used in the neighbourhood, and some are sent to Bitlis to be died red, a part of which return here for the consumption of the people. Besides these, Damascus and Aleppo manufactures are usually adopted for the clothing of persons of all ranks. What other things are required and are not found at Ván, are sent for from Erz-Rúm or Persia. Shawls of Kirmán are very generally used. The country produces a few yellow berries* gathered in the neighbouring districts, and the Hekkáriyeh mountains furnish orpiment brought hither for sale; but there is no other article for export, except it be some fruits, dried and fresh. Grains of all kinds, fruits and wine, abound and are cheap, and linseed is grown for making lamp-oil. Every person of respectability owns a house in town, a country-house with an orchard and vineyard, and perhaps a few fields. Having thus his house rent-free, and most of his very moderate wants supplied from

* *Rhamnus infectorius*.—F. S.

his garden, or from the profits of a petty trade (carried on with a capital of from 20*l.* to 100*l.*), a man manages by economy to meet the expenses of a family: few, however, grow richer, excepting some who follow the occupation of *sarráf* or bankers, and who manage generally to improve their fortunes. Persons not possessing the above advantages resort to Constantinople to obtain a livelihood. I inquired as to the value of property, and was informed that a good large garden with a house might be had for about 150*l.*: 5*l.* would be required to pay a gardener, and the produce may be estimated at 15*l.*, leaving nett 10*l.* or 6½ per cent.; a poor employment of capital in a country where the interest of money is usually 18 per cent. per annum. The most valuable produce is that of the vineyard, which is, however, very precarious, as a premature winter cuts off the grapes. The juice is expressed and the must sold, the buyer converting it into wine. A *batmán*, by which weight it is sold, equals 20½ lbs., and fetches about 1*s.*: grapes sell at about ½*d.* per lb. for eating, apples 4*d.* per *batmán*, bread about 7*d.* per *batmán*, and mutton about 1*d.* per lb. It is evident, therefore, that subsistence costs very little.

Five or six crazy boats navigate the lake, and are sometimes employed to convey raw cotton or cotton cloths to *Tádván*, on their way to *Bitlis*. They bring on their return grain and timber from the shores of the lake. There is not a small boat on the lake, nor has any attempt been made to fish in the deep water: a small fish is caught in the spring in immense quantities, as it comes to spawn up the streams which flow into the lake. Baskets are employed for the purpose, and the people catch and salt enough for their use, besides what they send away as presents, and a very small quantity which they offer for sale. This fish resembles a herring, and is much esteemed. It would be a great convenience were passage-boats established on the lake. A person now has to make a journey of several days, not free from danger, which in a boat would only take a few hours, by crossing instead of going round the lake. Encouragement should be given to fish with nets in the deep water. There can be no doubt that fish abound, as is clearly indicated by those caught in ascending the streams, and by the number of cormorants, gulls, and other waterfowl which frequent the lake. This is of an irregular shape; in extreme length from N.E. to S.W., or from *Arnis* to *Tádván*, about 70 miles, and in extreme breadth from N. to S. about 28 miles. Its area may be 1000 square geographical miles. It seldom freezes at any distance from the shore, but the N.E. end, being shallow, is in severe winters frozen, and the ice can be crossed.

I estimated the level of *Ván* to be 1000 feet lower than *Erz-Rúm*, or about 5467 feet above the sea, and the climate is much

milder; a considerable quantity of snow, however, falls, but the frost does not reach the degree of intensity it does at Erz-Rúm.

23rd.—On our departure from Ván we passed at the back of the Castle rock, taking a direction N. by W. Leaving Iskeleh Kõi, a small village on the borders of the lake, about a mile on our left, and increasing our distance from its shores as we proceeded, we went over undulating ground, and in $3\frac{1}{2}$ hours reached Alá Kõi (beautiful village), our intended resting-place. As the road was good and we made but few stoppages, I estimated the distance between 12 and 14 miles. The village contains 100 Armenian, who afford Kishlak to 30 Kurd families. On the hill above the village is an old church in ruins: at the foot of the same hill is situated another church of small dimensions, and a larger one of modern construction is to be seen in the village. The vineyards were very extensive, and a considerable quantity of wine is made, which is sent to Ván for sale. A low range of hills intervenes between the village and the lake, which they shut out from view. The soil is a whitish clay, which, when the seasons are wet, produces abundant crops; but in a contrary case, they fail. The water descending from the mountains suffices for the vineyards and the use of the villagers, but the supply is not ample enough for irrigating the fields. In the afternoon we were joined by the Muhurdár Efendí (seal-bearer) of Ishák Páshá, who was to accompany me to Báyzid as Mihmándár.

24th.—From Alá Kõi we first took a course about N.E.: in 4 hours we came to the shores of the lake, having had a high range on our left hand between it and our road. We passed several small villages, and saw some flocks of goats and sheep, but there was not much land under cultivation, although the soil appeared excellent. After following the lake for 2 miles we again struck inland behind a range of mountains which advance into the lake, and in about an hour reached Merek. Here is a monastery and church dedicated to the Virgin, whose festival was now celebrated. We passed a good many peasants, men, women and children, wending their way thither to join in the festivities. We were 6 hours on the march from Alá Kõi, and, the road being good, I estimated the distance at about 20 miles. Merek is situated on the side of the mountains at a considerable elevation above the lake. Outside the village, I was met by some horsemen sent as a compliment by the Sû-Báshí, who presides at the festival, to maintain order, and several bands of the rude music of the country also came out to meet me, not to do me honour but to obtain a present. The festival attracts people from all the surrounding country: the love of pleasure, however, has quite as much to do with their assembling as devotion. Dancing seemed to be the

principal amusement of the women, of whom various groups were seen treading with solemn pace the circular dance, to the sound of their usual harsh-sounding drum and fife. The women were all dressed in red cotton petticoats, with white cotton veils over their head reaching to the waist. The male portion of the assemblage were amused by the exhibition of dancing boys, or the antics of a bear. Every now and then came in a fresh party from a village, the chiefs of which were mounted on horses; the females followed on mules, asses, or oxen, with their young children clinging round them. Music and young men dancing preceded the cavalcade. By similar parties the crowd kept hourly increasing: each set as it arrived took up the station allotted for its encampment on the side of a hill. The people were all in their holiday clothing: the display of finery, however, was very moderate, and the effect of it was not much improved by the dust collected on the journey. The scene was noisy enough, and certainly extraordinary, but the separation of the sexes renders such exhibitions very tame in eastern countries. In the evening the people thronged the small church even to suffocation, and while the service was going on fanatics were crying to the Virgin for relief from ills which no aid within their reach could alleviate, and endless crossings and prostrations attested, if not the piety of the devotees, at least their superstitious belief in the efficacy of their invocations. Without the church was a rock with a smooth surface which was supposed to possess the miraculous power of maintaining pieces of rock perpetually in contact, provided the person placing them there was free from sin. Here were seen numerous persons sufficiently credulous to make the vain attempt. After holding their fragments, and trying repeatedly whether they had stuck, by removing or slackening the pressure of the hand, they were mortified to find that their hopes and endeavours were fruitless—a discovery which one would have thought their consciences might previously have led them to make. Some of the more crafty sought out slight inequalities in the rock, hoping by this device to gain a temporary triumph. What blind ignorance in the people do such attempts betray, and what debasement in the clergy who countenance them! It is quite indispensable to the success of missionary labours in these countries to enlighten the Christians, for unless that be accomplished, any progress among the Mohammedans were utterly hopeless. I was told that between 5000 and 6000 persons meet together at this festival. A great many Kurds came for other purposes than devotion. The money which the devotees deposit in the church is equally divided between the Páshá and the clergy, and I heard each party received about 50*l.*, a proof either of the poverty of the Christians, or their indisposition to be liberal to the church. The Şú-Báshí

looks after the Páshá's interest, and keeps a watch over the box containing the contributions. At night the church-doors are locked and the keys delivered to the Şú-Báshí; but he takes the additional precaution of securing the door by affixing his own seal, which would not indicate a high opinion of the honesty of the priests.

A little before sunset the Şú-Báshí mounted, and, attended by a concourse of Kurd horsemen, made the circuit of the tents. In a field below our camp, the Kurds for a short time amused themselves in their martial exercises, galloping and wheeling their coursers about, firing their pistols, brandishing their lances,*advancing and retreating in mimic warfare, after which the whole cavalcade continued its progress. The dancing and music was kept up until after midnight, when the noisy crowd, exhausted by fatigue, sunk into repose.

25th.—One of our muleteers was very ill with a relapse of the Kharpút fever, brought on by indiscretion at Ván. On rising it was discovered that two of our baggage-horses had been stolen. All the horses were picketed near our tents. The keepers slept among them, and the Şú-Báshí appointed four guards to keep watch during the night, yet nobody had heard the thieves. The guards were threatened by the Şú-Báshí, but no discovery ensued, and we were obliged to depart without our horses. A Kurd who accompanied me from Ván was returning, and I wrote by him to inform Is-hák Páshá of the robbery which had been committed, and to request him to oblige the Şú-Báshí to recover the animals.

The Şú-Báshí gave us six horsemen as a guard to our next station, and he himself with some men accompanied us a little way out of the village. We kept along the side of the hills, and did not descend to the level of the lake until we had nearly reached its extreme limit: we rode through pastures of coarse dried grass to the Bendi-Máhi-Şú (Fish-Bank River), intending to ford it at its mouth, but we found the water too deep. A Kurd at the first step; went above his horse's chest. The river is a considerable one, broad, and of a dark-blue colour, and the banks were covered with high reeds; it has its sources in the mountains which are traversed going direct to Báyzíd. The sources of the Murád are in the same range (but more to the westward), of which the Bendi-Máhi drains the southern valleys, and the Murád the northern. The whole course of the former stream may be 35 to 40 miles from its sources to the Lake. After our unsuccessful attempt at crossing, we kept up the Bendi-Máhi for about 4 miles, where we found a bridge in so dilapidated a state that our baggage-horses had great difficulty in climbing over it, and some were nearly precipitated into the water in the attempt. I preferred fording the stream, which reached to the horse's breast. Two

hours further up the river, is Bárgir (vulgo Beigir) Kāl'eh, the seat of a Kurd Beg; the road to Báyzíd passes through it, and between the two places there are no villages whatever. The whole intervening country is a mountain track frequented only by the Kurd tribes. The distance was said to be 12 hours; but from my subsequent experience in passing a different part of the same range, I should conceive it more likely to be 20 hours. Ishak Páshá has given orders to the heads of the neighbouring villages to repair the bridge, and some materials were already collected. From a bank close by the bridge issued a spring of the temperature of 55° Fahr., which should show the mean heat of the climate. After crossing it, we followed the stream down to the head of the lake, where we came to a Kurd encampment. Here my escort asked permission to quit us on their return, the chief having first given orders to the Aghá of the Kurds to furnish an escort on the morrow. We went along the banks of the lake for an hour, when we turned up the side of the mountains to another Kurd encampment occupied by the inhabitants of a village beyond, named Arnis, who were here for the sake of the pastures. On the level of the lake we had been much annoyed by innumerable swarms of a small fly which left a green stain on being squeezed; but at these pastures we were above the level they seemed to inhabit. Our encamping-ground was very rough, near a small spring of good and cool water: the people appeared very poor, but they furnished us with what they possessed, and we obtained supplies for ourselves and cattle. Many of the Kurds of this tract of country are already settled in villages, and the tents we passed belonged to some who were encamped for the convenience of pasturing their cattle. The Kurds were induced to settle at Arnis by exemption from taxes, but they were charged with looking to the security of the road and the entertainment of passengers. Several Kurd chiefs came from neighbouring encampments to pay their respects to us during the course of the afternoon.

26th.—Very early two Kurd Aghás and several horsemen arrived as an escort. The chiefs, however, after riding a little way, took their leave. We descended to the edge of the lake, and were again molested by the swarms of flies. The country was quite waste, but the remains of walls which had served to inclose fields showed it had not always been so. Our Kurds said there had formerly been vineyards and gardens the whole way, but at what period they could not tell, nor were there any wild fruit-trees or vines to be seen. We passed the ruins of a large Khán, and of a village near it. I saw an opening in the mountains on our right, which looked like the side of a crater broken down, and the rocks being a black hard honeycombed lava con-

firmed the probability. We had started at 6, and at 9½ A.M. we met a Tátár of *Is-hak Páshá's* on his way from *Erz-Rúm* to *Ván*; he had letters for me, but not wishing to open his packets on the road, he returned with us to the village from whence he last came. We crossed a small clear stream rolling over black lava boulders, and mounting a high bank continued along it for a short time, and then came to the village *Haïdar Beg*, where we stopped to get our letters. This village is not far from, although out of sight of, the lake. The stream we had crossed flows through a pretty valley which the village overlooks, and some way up was seen an old Armenian church. The distance from *Arnis I* estimated at about 10 miles. At 11½ A.M. we resumed our journey, and after ¼ hour came in sight of the lake and the castle of *Ardish*,* close on the water's edge. We rode along the sloping sides of the mountains, and finally descended to the plain of *Ardish*; on entering which, we crossed one considerable stream, afterwards several smaller ones, and a good deal of swampy ground, before we reached the place. The *Musellim* met me outside, and invited us to his house; but as our tents were further on I excused myself, and he accompanied us to our camp, which I found pitched on the banks of another considerable river called the *Ardish Chái*. Beyond it, on the other side, the plain extended and appeared to be a marsh. The *Musellim*, named *Ahmed Beg*, was a fat good-humoured communicative person, and young for the post he occupied: he was a native of *Ardish*, and had not been further than *Erz-Rúm*, *Músh*, *Bitlis*, and *Ván*. The castle, as it is called, is in a most ruinous condition. The walls had fallen in many places, and they did not reach down to the shore, so that the town was open to the lake, and may be said not to have any defences. The houses within the walls were in the style of the villages, half under ground. The *Kaşabah* is inhabited by about 100 *Mohammedan* and a very few *Armenian* families; but they have a small and very ancient church. The territory commanded by the *Musellim* contains twenty thriving and large villages, and a few which are small and poor. The people possess a great number of cattle, sheep, and mares, and the pastures are extensive and fine. The soil is alluvial, deep, and very productive. The lake from this place to its extreme eastern end is very shallow, and the deposits from the numerous rivers which flow into it seem to be filling it up. Tradition, however, says that the lake now covers what was once a plain, with the *Bendí Máhí* and *Ardish* rivers running through it; but I consider it as more probable that such may at some distant period be the case than that it has already occurred. The

* Properly *Arijish*; *Jih. Numá.*, p. 412; *St. Martin Mém. sur l'Arménie*, i. 54—F.S.

plain of Ardish is evidently gaining on the lake; in ten years it has advanced about a mile. Formerly, along the shore there was an impassable morass, which the road to Ardish led round: now, except in spring, when the mud is too deep, the road crosses the plain in a straight line. The water is slightly brackish only, and much less salt than at Tádván; which can be accounted for from the number of rivers so near each other falling into this shallow part of the lake. The Musellim said the peasantry would be very rich and prosperous were it not for the onerous tax of the *Kishlák*, and the thieving propensities of the Kurds. He remarked, it were better to live on the mountains than in a village; meaning thereby that the Kurds were better off than the poor villagers on whom they were quartered, and whom they spoiled. The tribe of Haïderán-lis under Sultán Aghá pasture their cattle on the neighbouring mountains, and pass the winter in the villages belonging to Ardish. I asked the character of Sultán Aghá: he said he was not a bad man for a Kurd, but his tribe robbed when they could. If the chief is applied to, he promises restitution, but some excuse is usually made in order to defer or evade it; either the robber is said to be absent, or the stolen property to be concealed, but it is promised to be restored on the tribe's coming to their winter quarters, when it could not be secreted: however, except the owner himself discover his lost property, and can clearly identify it, it is never recovered, and of course every artifice is used to prevent its being found by the owner. The Musellim admitted that thefts were less frequent than formerly, and that they were made by craft rather than by violence. A single traveller might be stripped, if met by a party of Kurds, but no personal injury was done to him unless in resisting, he wounded some of the robbers. He had often heard the abolition of *Kishlák* talked of, but he saw no symptom of its being carried into effect.

The winter is severe, and a great deal of snow falls, but the cold is never so intense as at Erz-Rúm: occasionally the lake freezes firmly enough for people to cross over from Ardish to the opposite side. Near our encamping ground they were collecting many heaps of grain preparatory to its being trodden out; the frequent 'Arabahs bringing it in, the swarms of children sporting in the river, the numerous herds of cattle pasturing in the marshes, together with the curious lounging about our tents, united to form an animated scene.

27th.—Westward of our tents, on the opposite side of the river, I had observed at a distant village a stone building, which I supposed to be an Armenian church; but as we were starting I inquired by chance what it was, and was told it was the tomb of a Persian king; more I could not learn of the person of whom I made the inquiry, and no one better informed could just then be

found. We rode up the stream for about a quarter of an hour, and then crossed near a village; from thence we took a westerly direction over high ground, having mountains between us and the lake, and a higher range on our right: we again approached the lake, and soon after again quitting it, to round a high land, we reached the Armenian village of Ashraf, situated in a ravine. We were about three hours in making the distance, which I considered as being about 8 or 9 miles from Ardish. After a rest of $1\frac{1}{2}$ hour we proceeded. Below the village the ravine widens into a plain which extends to the lake, and has in it many vineyards: we had procured some tolerable wine at our breakfast at the village. Our road continued near the lake, with abrupt mountains on our right. After an hour they began gradually to recede, leaving between them and the water a small plain; we had a view of Sapán Tágħ* from base to summit. The water of the lake was very shallow and stagnant, and it was here formed into a land-locked bay, on the surface of which numerous waterfowl were seen. The margin was bordered by meadows, in which were small pools of stagnant water, dark coloured, and strong smelling, and apparently impregnated with sulphur. About 3 miles from the lake towards Sapán Tágħ was the village of Núrshín. Quitting the bay, we went over a rising ground, and again came in sight of water. I took it to be another bay, communicating with the main lake, but on a nearer inspection I found it was a distinct piece of water. The soil was sandy, and the crops, which the peasantry were reaping, were remarkably fine and clean, and I observed the grain was sown in drills. I learned that drill-husbandry and a careful system of agriculture was universally practised in this part of the country. A long wooden block, with a sharpened end hollowed on a slope, is drawn by two oxen, and makes a trench about 6 inches deep. A boy follows, and lets the seed fall from his hand into the trough, from whence it runs into the drill; the grain is picked over by women, and the finest heads selected for seed. After the crop is reaped the weeds are cut down and burned. Hoeing is not practised, nor from the appearance of the crops can it be required. The fields are never irrigated; and although there had not been any rain for some months, and the soil appeared dry sand, yet the bottom of the drill was quite moist, and the people said that in ten days the seed now sown would appear above the ground. I asked some of them why they sowed thus, and how long the system had been in practice; they said they learned it from their fathers, and they followed it because they saw it produced excellent crops: this was all they knew on the subject. It was curious to find practised in

* *Serbán Tágħ*, J. N., p. 413. *Sapán* is probably a modern Turkish corruption, as *Urmityah* for *Urmiah*, and *Júlamerik* for *Júlamerk*.

an uncivilised country from time immemorial, a system of agriculture which had been introduced at no distant epoch in our own country as a novelty. We reached the village of Arin, situated at about 1 mile from its lake, at 3½ P.M. We were 5½ hours from Ashraf; but our progress being slow, I did not reckon the distance more than 14 miles. The Şú-Báshí came to meet me, and invited us to his house while our tents were being pitched. He offered us some cool sherbet and water-melons, which were both very acceptable after our long and sultry ride. This village is the property of Is-hák Páshá, and contains fifteen Armenian families, and ten Kurds make their Kishlákh here. The Şú-Báshí was an officer of the Páshá's establishment, and comes hither for two months in the autumn to collect his master's share of the crops, which he ships off to Ván, and then returns himself to wait on the Páshá. He came to my tents to pay his respects: he warned the muleteers not to leave their cattle out at night, as he would not answer for their safety, offering stabling in the village. He spoke much of the productive qualities of the soil, which was well adapted to the culture of the water-melon: the peasantry formerly cultivated it, but finding the fruit was always eaten by passing Kurds, they ceased to do so. The pastures near the village are good and extensive, and the peasants own a considerable number of cattle and mares. Soda is collected on the borders of the lake, and is sold to the Kurds for making soap. A ragged Kurd was discovered prowling about our tents: he was mistaken for a man of the village by the servants; but the villagers disclaimed any knowledge of him, and he was driven away; his object was, no doubt, to have watched an opportunity of purloining something.

28th.—The Musellim of 'A'd-el-jiváz* was at a neighbouring village, and the Şú-Báshí sent to inform him that I was proceeding to his Kaşabah on the morrow. The night was cold; our muleteer continued very ill; and a servant was also seized with fever. We mounted at 6 A.M., and passed between the lakes: the distance may be 2 miles; and from the character of the intervening ground, as well as from its elevation, I infer that they never have been united. The small one was only slightly brackish. The Musellim of 'A'd-el-jiváz overtook us on the road, and accompanied us: he was a fat talkative person, had travelled rather extensively in his own country, and was civilised enough to take snuff. He spoke in praise of the fertility of the soil, and the mode of cultivation, which he said was peculiar to this country; and he boasted that no place except Erz-Rúm could show such excellent bread. He stated that in favourable seasons

* Jehân Númá.—p. 411.

wheat yielded twenty-five, rye fifty, and barley forty fold; a produce I never found in any other part of the country. On approaching 'A'd-el-jiváz we had on either side of our road meadows and orchards. The Musellim insisted on our dismounting at his house, where, seated under the shade of trees close by a pretty waterfall, a breakfast was served to us. The stream came from a small lake in the mountains, and served to irrigate the gardens and turn some watermills in its short course to the lake of Ván. Our baggage, on coming up, was sent to the house of a Turk, one of the chief men of the village. Our tents were pitched in an orchard on turf under fruit-trees: the inclosure was small, and the walls impeded the free circulation of the air; so that although we were in the shade, we found the heat rather oppressive.

The Musellim came to pay me his visit in the afternoon: he was very civil and obliging, and took care that we should have what supplies we stood in need of. The town contains about 250 Mohammedan and 30 Armenian families. There is an old castle in ruins, placed on a high rock above the town, which is inclosed by walls uniting with the works of the castle at both extremities, and running directly down to the lake. There is no defence on that side of the town; but the water is too deep to admit of persons getting round the ends of the walls which terminate in the lake: they are in a tolerable state of repair, and the gates serve to keep intruders out. The town is small, and many houses are in ruins: the greater part of the inhabitants live in detached houses among the gardens, with which the whole valley is filled. The rocks are limestone, and pure water runs in great abundance through the lanes, serving to irrigate the gardens. There is great plenty of common fruits; and water-melons and grapes also thrive well. On the whole 'A'd-el-jiváz is a pretty and pleasant place.

There are about twenty looms in the town, which produce coarse cotton cloths of the usual kind; and both Turks and Armenians are weavers.

30th.—I had resolved to stay here some days, to recruit the sick, as well as to afford us an opportunity of ascending Şapán Tágh.

While my companions were engaged in other pursuits I determined to visit Akhlát, which is from about 14 to 16 miles from 'A'd-el-jiváz, the road running the whole way by the shores of the lake. I took with me a few attendants and a guide, and mounted early in the morning. We first crossed the town, and then, continuing along the edge of the water, passed a small village about a mile from it, placed among orchards; thence we ascended a steep rocky path, and rode under high cliffs, far above the level

of the lake: the rocks were all limestone. After an hour's ride, the mountains receded from the lake, and we entered on a plain where the limestone ceased and was followed by clay slate. To that again a coarse conglomerate succeeded, the component parts of which as we advanced gradually became smaller, until before reaching Akhlát, it was converted into a fine-grained light sandstone. After crossing the before-mentioned plain, we kept along the base of the mountains, close by the lake: at 3 hours we crossed another plain, in which were situated two villages surrounded by fine walnut and fruit trees. On approaching Akhlát we came to some more gardens, from whence, instead of going along the shore to the town, we kept higher up the hills, to visit the old town. I first passed some Mohammedan tombs, exactly like those met in so many parts of Turkey, at Vastán, Erz-Rúm, and Kaïsar. They were made of the light sandstone which appears to resist the effects of the weather, for the inscriptions were quite fresh. There are a great number of similar tombs and of small chapels dispersed among gardens, fields, and cottages. In a deep narrow ravine are the principal remains of the town: in the centre of the ravine there is a rock, much like that of the castle at Bitlis, on which are the foundations of a solid structure, probably a castle or palace, the stones cemented with lime. On the opposite side of the ravine is a large tomb in ruins, said to be that of a sovereign of the place. On this side was one burying-ground of immense extent, many of the graves in which had headstones, of one piece, 12 feet high; and besides this, there were several other smaller burying-grounds, evidences of the extent of the population of the town. Turkish or Arabic inscriptions are found on all the tombs, and on other buildings; and from them probably might be collected some particulars as to the history of the place. All that the people could tell me was, that it had been the seat of an ancient sovereign. It was, perhaps, this town which was besieged and taken by Timúr in the Fourteenth Century.

From these ruins I returned to the modern Akhlát, and, entering by the western, passed through the town, and went out by the eastern gate. The town is surrounded by a double wall and ditch, the inner being flanked by irregular towers: at the higher end is the I'ch Kal'eh (inner castle), or citadel. The town is completely walled on all sides, even facing the lake, down to the borders of which it extends. The houses in the city are built of square stones, cemented by clay, very much in the style of Bitlis. The modern town certainly is of some antiquity, from the style of its buildings and the character of its fortifications. I did not see a living soul in passing through the place; and we went to rest ourselves and horses in an orchard on the banks of the lake. We were followed thither by the son of the Musellim, who was

absent. I had seen the lad at Músh: he sent a message to his father, who was in a village near, to inform him of my arrival: meantime a breakfast was provided, and we procured from the orchard plenty of apricots, pears, and water-melons. After resting for two hours, I was just on the eve of starting on my return when the Musellim arrived. His name was Sheikh Helvah; he had been attached to Es'ad Páshá of Erz-Rúm, and recollected having seen me there. The Páshá placed him as Kyayá to Husein, when he was named to the Páshálik of Músh. After Husein Páshá's deposition, Helvah was sent to this his native city as Musellim. He derives his title of Sheikh from his father, who was head of the order of Turling Dervishes. The Musellim pressed me to remain the night at Akhlát; but, having promised to return to 'A'd-el-jiváz, I was obliged to decline his civility. Two young Kurds accompanied the Musellim; they were named Mohammed and Mustafá Beg, sons of Ahmed, a former Páshá of Músh, and cousins to Emin, the present Páshá. They lived in this neighbourhood, and possessed considerable landed property. Both were handsome young men, very tastily dressed in the Kurd fashion, and mounted on beautiful mares, richly caparisoned, each with a numerous suite of attendants well armed and mounted.

Mohammed Beg, the elder brother, had a most prepossessing countenance and manner, indicative of good nature and high breeding; but I heard that he was a most atrocious assassin. Mustafá Beg, on the contrary, had a sullen look, but was described as a much more respectable character: he had been married to a daughter of Is-hak Páshá, who had since died. Mohammed Beg was said to have himself killed, or caused to be assassinated, eighteen or twenty persons. About four years ago, he with his servants attacked a party conveying treasure, which he plundered after murdering the people. This, added to his former crimes, induced Es'ad Páshá of Erz-Rúm to order Is-hak Páshá to seize Mohammed Beg, and send him to Erz-Rúm.

He got intelligence of this, and fled to Baghdád, where he remained until Es'ad Páshá's removal from Erz-Rúm. He then returned home, and has since remained unmolested: however, he dares not venture into any town where a Páshá resides. Another of his atrocities was related to me. A servant of his possessed a most beautiful wife, whom he saw and coveted: one day he called the husband to him in the stable, put him to death, and took his wife into his harem. Some one remonstrated with him, and asked why he could not take the woman without murdering the man: he replied coolly that he was his own servant, and no one could question his right to dispose of him as he pleased. For this deed he was never called to account. These and many other similar facts which I heard, show the impunity of as-

sassins and robbers among these lawless Kurds. These brothers had inherited considerable property; but they had wasted a good portion of it in maintaining and attaching to them a numerous host of devoted dependents. The distance from Akhlát to Tádván was 4 hours; to Bitlís, 8; to Músh, 16; to Malázgird, 12. I returned to 'A'd-el-jiváz by the road leading all the way at the edge of the lake. Drill husbandry is in practice here: the soil was a fine and apparently arid sand, but was moist at the depth of the trenches.

31st.—Towards evening, we left 'A'd-el-jiváz to go to a small village, 6 or 7 miles distant, named Norshunjuk, situated at the foot of Sapán Tâgh, where we proposed sleeping, in order that we might have as much time as possible for the ascent of the mountain. We reached the village as the evening was closing in, and, having obtained an open gallery, betook ourselves to rest. The vermin prevented our sleeping much, and we rose before dawn: we could not procure a cup of coffee in this miserable village.

1st September.—We commenced the ascent at 5h. 10m., attended by two mounted Kurds as guides. We first took a north-easterly direction along the roots of the mountain; and after about an hour's ride turned to the N. up the steep side of a conical hill, which had every appearance of having been a crater. Before reaching the summit we diverged into a hollow between it and the main part of the mountain, which we soon afterwards began to ascend. We passed over several patches of snow, hard enough to bear the horses; and finally stopped on the edge of the crater, beyond which the horses could not proceed. To reach this spot we had taken $3\frac{1}{2}$ hours. Opposite to us, on the N.E., was the cone, which seemed to have been forced out of that side of the crater. We could only reach it by following the edge of the crater; for to have descended into it would have increased the height of our after-ascent very much. To reach the base of the cone by the path we followed, the descent was considerable. The cone is formed of fragments of rock, of various sizes, not united by any earth, but all lying loosely in a heap. The rock is all of one kind, either grey or pale red, remarkably light, and, in walking over, the pieces are easily displaced, and they rattle like cinders: small bright crystals are seen in fracturing the rock. It appeared as if, after being calcined by a subterraneous fire, the fragments forming the cone had been heaved up by the same force. The ascent was more laborious than any similar one I ever attempted, not only from its steepness, but from the oppression at the chest we all felt. We could not ascend more than five or six steps without stopping to take breath. The top of the cone is a level, surrounded by a ridge with numerous peaks, forming a sort of enclosure. Every part was of the same loose rock, and I

perceived only a solitary fragment of a different appearance, which I took to be the rock before it had undergone the action of fire. We ascended the outer ridge of the cone and one of the highest peaks overlooking the lake of Ván. It occupied us 4 hours from the time we dismounted to attain this point. Here the theodolite was fixed, and bearings of the surrounding objects taken.

From hence we could perceive that our first steep ascent was the side of a crater, and in the hollow of the summit was a small lake called *Aghrí Göl* (Painful Pool). Looking S. from our position, was an extensive field of snow lying at the foot of the cone. In the hollow between us and the place where we left our horses the snow had melted and formed a pool: this was entirely ice in the morning; but before we quitted the mountain it had thawed very much, and was covered with water. The Kurd guides had promised to show me a snow-worm, and one of them descended to this pool to find the animal, but he did not succeed. Although both the Kurds asserted that they had seen it, and although at places in this country distant from *Şapán Tâgh* I had been assured of the same thing, yet similar assertions among such a people are too little to be relied on, to establish a fact, of which ocular demonstration would be to me the only satisfactory proof. We saw the lake of *Erjek E. of Ván*—that of *Názuk W. of Akhlát*, another lake a little further W., as well as the small one from whence the stream of *'A'd-el-jiváz* rises. The two peaks of *Ararat* were distinctly visible, the range of *Bín-göl* also, and the cone-like peak of *Kóseh Tâgh*, above *Toprák Kal'eh*, in the plain of *Arishkerd*. We all felt unpleasant effects from our ascent, and the Kurds said everybody experienced the same, which they attributed to the weight of the air. Dr. Dickson was quite sick at the stomach; Mr. Glascott so giddy that he could not continue taking his bearings without every few minutes quitting his work to rest; I had an intense headache; two persons were so affected that they could not proceed beyond the foot of the cone; one who mounted it descended at once, and on getting back vomited violently; even those who remained with the horses suffered from pain in the head. This could not have arisen from the mere height of the mountain, but might be occasioned by the escape of some gas from the crater; although, if so, it was quite imperceptible. Our barometer failed us at the top of the mountain: the mercury had long been gradually escaping from the tube; but we had hoped by care to have been able to preserve it in a sufficiently effective state to assist our ascertaining the height: however, so much air had got into the mercury that no dependence could be placed on it. This being the condition of the barometer, the column of mercury descended below 20 inches. We had ascertained the lake of Ván to be 5467 feet above the

level of the Black Sea. We had evidently not reached the limit of perpetual snow; but it froze every night, and we certainly could not be far below the line of congelation. At mid-day the thermometer stood at 48° , while it was about 80° at El-jiváz. A great deal of snow remained in various parts near the summit, but the very highest peaks were bare of it; there was no glacier on the mountain. Taking all these facts into consideration, I should estimate its summit to be between 4000 and 4500 feet above the lake, or from 9500 to 10,000 feet above the sea. I was told that the ascent of the mountain was only practicable from the middle of August to the first week in September, and that, had we delayed our visit, we might have been disappointed: in fact, on the 14th September, from the plain of Arishkerd, we saw the summit of *Sapán Tâgh* completely covered with snow. The specimens of rock which I collected prove beyond a doubt the volcanic nature of the mountain; but there is no record or tradition of its having been in a state of activity. I found neither pumice nor obsidian, although both are seen on the shores of the lake; basalt, scoria and other volcanic rocks, were in abundance. Lava has burst from many parts of the mountain beside the summit.

*Supan** means holy, and is one of the epithets applied to the Deity. There are numerous traditions respecting this mountain, but, like most Mohammedan legends, they are childish, and without a shadow of probability. We were $1\frac{1}{2}$ hour returning to our horses, and, after a short rest, mounted, and in about 2 hours descended to Norshunjuk, from whence in $1\frac{3}{4}$ hour we got back to El-jiváz. We were all relieved from our unpleasant sensations by the time we had reached the foot of the mountain.

Not a tree is to be found on the *Sapán Tâgh*, nor even a shrub: there are some pastures, but we did not see herds or flocks on our journey, nor any traces of tents.

We were much fatigued by our exertions and long abstinence, for we had scarcely touched food since leaving El-jiváz. We had some cold meat and bread with us, but nobody had any inclination to eat.

3rd.—We left El-jiváz at about 7 A.M., and after getting clear of the village and the surrounding gardens kept at the base of *Sapán Tâgh*, at some distance from the lake, whose shores we had skirted on approaching El-jiváz. We passed the remains of an Armenian village, where there is a large burying-ground and

* *Sapán* (a plough-handle) is probably a corruption of *Sibán* (apples), or *Seibán* (streams); but *Supan*, the name meant by Mr. Brant's informants, was taken by them for the Armenian *surp* or *surpazan*—holy, sacred. It does not, however, appear that the Armenian writers give that name to this mountain.—F.S.

a ruined church. On our right, about 3 miles distant, was the village of Arin and its lake. We came down to the lake of Ván, at the point at which we had before quitted it on approaching Arin, and thence turning from it, took a course towards the hills on our left, having the village of Núrshín in view. At 2½ h. p.m. we reached the small village of Gújiyeh, situated among low hills. The weather was sultry, but the road was good, and I reckoned the distance 18 or 20 miles.

The principal rock I remarked at the foot of Sapán Tâgh was a basaltic kind of porphyry, which I found likewise at the summit of the mountain; the soil is light and sandy. On our road we saw two mounted Kurds with some reapers: when they perceived our party they proceeded onwards. One of my people rode up to the reapers to procure a draught of water, and they told him that the two men were on the point of stripping them of everything they had with them, but seeing so many horsemen approaching they made off. Similar acts are of ordinary occurrence; and one of my guards observed that this was not a country for an honest man to live in. The village of Gújiyeh contains ten Armenian, and gives Kishlák to twelve Kurd families.

4th.—Having but a short ride to the tents of Sultán Aghá, we did not start very early. We mounted at 7½ a.m. and reached our encamping ground a little before 9. We passed the small village of Arbuzunk, situated in a hollow; thence we rode over undulating ground until we reached the tents of the Kurd chief, pitched in a grassy bottom among some hills. His receiving tent was a Turkish single-poled one of cotton, given to him by the Páshá of Erz-Rúm. The tent which contained his harem was pitched at a distance, and was a large black goat's-hair one in the usual fashion. There were only about ten other tents in the same valley, and I was rather disappointed at finding the chief of a powerful tribe so ill attended. The grass was now dried up, but in spring the herbage must be luxuriant, and there was a copious source of water at hand.

The chief received me in his Turkish tent, and gave me coffee and sherbet. Meantime our own tents were pitched near his, and a breakfast of the usual kind was sent—fried eggs, honey, yoghurt (curds or sour milk), and bread, all good in their kind.

In the afternoon Sultán Aghá paid me a visit: he was more cheerful and talkative than when I saw him at Ván. I inquired respecting the separation of the Haiderán-lí tribe into two divisions. He said the other portion had been always accustomed to frequent Persia, that lands were given to it by the governor of Azerbáiján, and that at the conclusion of the last war between Turkey and Persia, it had been formally recognised by the Sultán as belonging to Persia. That division of the tribe had

been commanded by his own brother, Kásim Aghá, until his death, when his son succeeded to the dignity. On the decease of a chief the elders of a Kurd tribe elect a successor: this is always done from the same family: either an uncle, a brother, a cousin, or some relation of the former head of the tribe, is chosen; in fact, any member of the family who is in the general opinion endowed with most bravery or judgment. To him is confided the direction of the affairs of the tribe; but he does not appear to possess great power, and may be considered as the president of the council of elders, without whose concurrence nothing of much importance is undertaken. Sultán Aghá is said not to be rich, indeed not more so than many of the respectable members of the tribe. When presents are to be made the elders assemble and inquire what things can be found among the tribe suitable to the occasion. Those chosen are valued, and the proprietors indemnified by a levy on the whole community. I did not ask Sultán Aghá the number of his tribe, knowing how little the replies to such inquiries can be depended upon, but one of our party inquired whether he commanded 2000 tents, to which he assented. From others I had heard the numbers variously estimated at from 500 to 1000; and some said he had 1000, while others stated 2000 horsemen in his service. Such is the uncertainty of the information which can be gained on these points. I asked whether I might be allowed to see the interior of his private tent: he replied that it was not their custom, and I must excuse him. I said I thought that the Kurds did not conceal their women like the Turks: he answered that they did not expose theirs to view. I believe some mystery is observed among the women of the chiefs, but certainly the same rule does not hold good with those of the lower ranks.

I asked whether his tribe were good friends with the Hasan 'Alis, a tribe belonging to the Páshalik of Músh: he replied that last year the latter killed two of his people; that he had represented the matter to the Páshá of Erz-Rúm, by whom it was referred to Emín Páshá of Músh: he had, however, not received any satisfaction; and he remarked that the only justice he was likely to obtain was to kill two men of the Hasan 'Alis—a proceeding I recommended him to abstain from, as it would probably bring him into trouble. He said that his tribe receive Kishlák, but they provide hay for their own cattle, or if they are furnished with it by the Armenian peasantry, it is paid for. He did not pay the Páshá of Erz-Rúm for Kishlák, but he could not deny that he made him an annual present. This was of course a mere equivocation, and probably he did not like to avow that he paid Kishlák money. I inquired how the Kurds, who live so many months in the pure air, could bear to bury

themselves in the close and filthy stables of the Armenians. He confessed it was very disagreeable and even painful to them, and they looked upon it as an imprisonment. Why then, I asked, did they not build airy houses for themselves?—the reply was, that they did not understand house-building. He said the Zebekí and Haideránlí Kurds were sent back to Persia by force; they were very unwilling to quit the Turkish territory, and would not have done so of their own free-will. He admitted that the pastures and abundance of water in Turkey were great advantages over Persia, but the milder winter in the latter country was some compensation.

Sultán Aghá is held responsible for robberies committed in any part of the lands over which his tribe pasture. Some Eriván (Reván) Kurds lately plundered a village near Akhlát; he pursued the robbers and recovered the property stolen. During this summer, sixteen Ván-lís (people of Ván) returning from Constantinople were missed: they were known to have been at a village near Khinís, but beyond that, not a trace could be found of the people, their horses, or their property. Every possible search was made by Is-hak Páshá and the local governors, as well as by Sultán Aghá, but without the least success. He supposed that they must have been carried beyond either the Russian or Persian frontier by Kurds subject to those countries, and there made away with. They were known to be possessed of money, for many people at Erz-Rúm had given them packets in charge for their friends at Ván, thinking that so numerous a party would reach it in safety. Even in a country thinly peopled as this is, it must excite surprise that so considerable a number of persons should be lost without leaving a mark by which to detect the authors or show the mode of their disappearance. It was not Sultán Aghá's custom to place patrols near his tents, unless when he apprehended an attack from a hostile tribe. These tribes have not generally many tents in the same place; five to ten may be seen together, and as many some way lower down a valley or across a neighbouring hill, just as the pasture suffices for their cattle. In spring they first feed on the low grounds, and rise towards the higher mountains as the season advances and the lower pastures are consumed. They return gradually from the high grounds as the cold forces them to descend. When danger approaches they collect their men by beating drums on the hills, and the signal is repeated from camp to camp. Sultán Aghá said that in an hour he could thus summon 150 horsemen, well equipped for battle. I requested him to collect some men, that I might witness their exercise. In the evening he and five other Kurds mounted and galloped about with their spears below the tents; but it was not a sorry exhibition of this kind I wished to

witness; many times the guards who accompanied me on my journey had made a better show. In short I learned or saw very little on this visit which I did not know or had not witnessed before; and I should not have made it, had I imagined it would have been so bare of interest.

About the end of October the Kurds go into their winter quarters, where they remain between five and six months according as the spring is more or less advanced. None of the Kurds in this part of the country are in the habit of using defensive armour; they carry a lance, a brace of pistols, a small bell-mouthed blunderbuss, a sword and shield. There is sometimes to be found among them a case containing three darts, which is suspended to the saddle-bow, but this weapon is now generally out of use. The Haideránlís have the reputation of being brave warriors, and of breeding good horses; of the latter I did not see any favourable specimens, but they said the neighbouring Páshás had taken so many from them that but few of a good breed remained.

Sultán Aghá is married to a sister of the Kurd brothers whom I met at Akhlát.

In the evening at dinner-time, the chief sent us from his harem several dishes: a very excellent piláú containing a whole roast lamb, force-meat balls fried and covered with a sauce of curds and garlic, dates stewed in grease, exquisite yóghúrt, and very nice white bread-cakes. The dishes were all savoury, but too greasy to please the European taste.

5th.—The night was cool, and the morning actually cold. Sultán Aghá was up before we set off, and invited us to take a cup of coffee in his tent. I had made him a present of a few trifles, and he returned me a horse, which I would fain have declined had I not wished to avoid giving offence. We mounted at 6½ A.M., accompanied by two Kurds who were instructed to collect a sufficient escort from the tents we should pass near on our road; but, although one of the men went to every encampment we saw, not a single horseman attended the summons. We went over undulating ground without cultivation, where there must be good pasture in the spring and summer. We saw, at one green spot supplied with water, a few tents and a herd of mares and colts. We passed afterwards into a long valley, in which were numerous encampments along the waters of a small rill, of which the banks were quite verdant: from thence we crossed some hills and came to an extensive plain. Under the mountains on our left was an Armenian village, called Kará Kilísá,* from a church built of dark-coloured stone about 3 miles distant. We passed a very extensive Armenian burying-ground, and near it I saw the

* Black Church.—F. S.

remains of a large village: a mile further on, were remains of another village with its burying-ground, of smaller size than the preceding. The plain was almost without cultivation, but the soil was by no means barren; the neighbourhood of the Kurds must have caused the desertion of the villages. Beyond the last ruins we crossed a river, that which runs into the lake under the walls of *Ardîsh Kal'eh* on its western side: that castle was visible at a distance of about 12 miles. On the opposite side of the plain we reached a village, but, instead of entering it, turned up towards the mountains, and crossing a low ridge, descended into a deep valley: through it flow two streams, which, uniting before they quit the valley, form the most eastern river of the plain of *Ardîsh*. We crossed the river and ascended the ravine with one branch of the stream in it, till we came to the village of *Kunduk*. Some of the inhabitants were encamped below the village, the remainder were at other places pasturing their cattle, and the village was left without a living soul in it. The road was generally good: although we were 8 hours on the day's march, I only estimated the distance at 20 miles, as we made several short halts and had not pushed on. A short space from the villagers' tents were those of some *Haiderânî* Kurds: as the ground near them was good, and we came last from their chief, we made no hesitation in pitching our camp in their neighbourhood; but they were very uncivil, and could scarce be persuaded to furnish us with anything. We represented that we must have supplies, and that they had better give them, and receive their full payment, rather than oblige us to seize them by force. The Kurds said they had nothing to sell or give. A *khavâss** said we must be provided with a lamb: a Kurd seized him by the throat; but being a powerful man, he shook off the savage, who made an attempt to get hold of the gun of another Kurd standing by—the *khavâss* drew his pistol—the Kurds as well as our party interfered to prevent arms being used, and peace was restored. The *khavâss* found a drinking-cup and a handkerchief missing from his person: he discovered the thief in possession of the latter, and got it back, but the cup could not be found. The propensity to thieve seems irresistible in a Kurd. I believe he cannot help appropriating to his own use any article he covets, if the opportunity offer; and he appears to think it his privilege. After the scuffle everything we required was furnished and paid for, and the offender got friends to intercede and ask the *khavâss* to pardon him: he made the most humble apologies, and kissed the hands of the *khavâss*. The motive of their behaviour it is difficult to account for, since the men who accompanied us informed them whence we

* Soldier of the *Pâshâ's* body-guard; now attached to travellers as Janissaries formerly were.—F.S.

came and whom we were, and they were told at the commencement that everything should be paid for. After nightfall the uncle of Sultán Aghá came with a message from him to excuse himself for having unknowingly sent me to a village, the inhabitants of which were at their summer pastures, and to see that our wants were supplied.

6th.—As we were to make a long march over high mountains we determined to commence it early, and we made preparations for moving by moonlight: the air was cold.

Before mounting I sent for the uncle of Sultán Aghá, to whom I represented the dispute of the preceding evening. I pointed out the author of the disturbance, and requested that Sultán Aghá would reprimand him severely for his conduct. I availed myself of this opportunity to return the horse Sultán Aghá had given me. He was so knocked up by the previous day's journey that I knew he could not stand that before us, and I was afraid we should be much troubled with him. I did it in a way as little offensive as possible, by praising his breeding and good qualities, but stating that his youth and low condition made it impossible for him to continue the journey, and I requested that Sultán Aghá would keep him until he had gained strength, when he might send him to me at Erz-Rúm. The old gentleman said he saw I did not like the horse; to which I repeated my former reasons: however, he seemed still to consider it as a reproof to Sultán Aghá for not having given me a better animal: if so, the reproof was not without some advantage, for, instead of only having as yesterday two men, an escort of eleven was now sent with me.

At 5 A.M. we started ascending the ravine: on the banks of the stream were small trees, and among willows, alders, and birch, were wild apple and pear trees, and currant-bushes.

At a place where the ravine branched off and two small rills met, we were offered the alternative of a shorter but very difficult road or a longer and easier one. As the latter was likely to be sufficiently mountainous for our baggage-animals, from the nature of the ground, I chose it in preference to the former. At about 10 A.M. we reached a few Kurd tents, where we procured some exquisite yóghúrt, clotted cream (*kaímák*), and bread. The people were Haiderán-lís, and said they were going to join the part of their tribe settled in Persia. An old Kurd with a handsome countenance, a dark expressive eye, and a grey beard, said this was no longer a country to live in. I asked whether it was because they were not now allowed to plunder: he declared that he had never been a thief, but that they were ruined by the demands of the Sultán's Páshás. I observed that the quantity of mares, cows, and sheep around the tents (only five in number) showed that they were not quite destitute: he replied laughingly

that what I saw was of small value; a sufficient indication of his estimate of wealth, and of the unreasonableness of their complaints. Their stock, I am certain, would have constituted independence in any civilised country, to people whose wants are so small. Although among the Kurds there is positive evidence of pastoral wealth, yet one never sees the women and children well clothed, the latter being either naked or having a few rags which scarcely cover them. The women are neither neat nor cleanly in their dress. In youth both sexes are robust and healthy, and have beautiful teeth, but their exposed and laborious life makes the females grow prematurely old, and scarcely has the youth advanced to manhood when his appearance indicates a far greater age than he has really attained.

After an hour's rest, we quitted the tents, and crossing a small rill, began a steep ascent terminating in the summit of the range.

At 2½ P.M. we had attained the highest part of the *Alá Tágh* (Beautiful Mount): we soon crossed the ridge and descended into a deep valley by an almost precipitous path; the descent occupied ½ an hour. From the top of the valley (named the *Zelán Dereh*) came a small stream, and down its sides trickled innumerable rills of water, which, uniting at the bottom, formed a brook at almost every step augmenting in volume; these are the sources of the *Murád*. On the northern faces of the highest peaks of the range the snow lay in large masses, and I consider the *Alá Tágh* as very little inferior in height to the *Şapán Tágh*. We crossed the stream and continued by its left bank down the valley, which is generally narrow, with a grassy bottom. In our way we saw neither Kurd tents nor cattle of any kind, and only at one spot some grass cut for hay. Three or four tributary streams join the *Murád* before it reaches *Diyádín*, but I only perceived one of any size. A little before sunset we passed a ruined village, and then crossed to the right bank of the *Murád*. At 6½ P.M. we came to an encampment of peasants who had come hither from a neighbouring village to pasture their cattle. We proceeded onwards, and at near 9 P.M. reached *Diyádín*: we and our horses were fatigued with our long day's journey. The governor, a brother of *Behlúl Páshá* of *Báyazíd*, could not give us a place to rest in, but we got into a stable, and on some new hay soon fell into a sound sleep, while waiting for the arrival of our baggage and tents. About midnight they came up, and in an hour after, having procured some tea, we were in our beds.

7th.—After the long and fatiguing march of yesterday, neither men nor animals were in a condition to move onwards, but Dr. Dickson in particular was very much distressed; he had been unwell since our ascent of *Şapán Tágh*, from having eaten too much snow while on the summit. I sent a messenger with a

letter to Behlúl Páshá to announce my approach, and to request him to furnish me with a sufficient escort, as the road between Diyádín and Báyzíd was said to be very unsafe from Kurds.

I heard that Kásim Aghá, son of Huseín Aghá, chief of the Kurd tribe of Zelán-lí, was in the village, and I invited him to come and take coffee with me, which he did. He was about 18 years of age, neither good looking nor intelligent, but he had with him a fine young man who kept up the conversation and showed a good deal of sharpness. He had been in Khorásán, and knew all the British mission by name. Kásim Aghá had just come from the Russian frontier, whither he went to bring away about sixty families of his tribe, which had been residing on the Russian territory and wished to rejoin their tribe in Persia. The Russian authorities made no objection to their departure. The young Kurds admitted that Turkey was a preferable residence to Persia: in the latter country they enjoyed many advantages which they did not in the former, but they seemed to consider these were more than counterbalanced by the abundance of water in Turkey.

The Beg of Diyádín, by name 'Abdu-r-razzáq, paid me a visit. I inquired of him as to the route from Báyzíd by the frontier, and was told that it was good and quite safe, but that there were not any villages on the line, and that I should experience difficulty in procuring food for our cattle. This circumstance, added to that of the weather becoming daily too cold to keep horses out at night, made me consider it inexpedient to follow that route.

Diyádín is a large village, inhabited by a mixed population of Kurds and Armenians. Being on the high road to Persia, the people are subject to exactions on account of travellers, but they indemnify themselves by selling their barley and straw to caravans during the winter at exorbitant prices. The walls of the castle are partly broken down, and at present afford no protection. The residence of the Beg is most miserably dilapidated, and the harem, or female apartments, alone are habitable. He has only one receiving-room outside its precincts, which he offered us on our arrival, but my khaváss thought a stable in the village more comfortable. This was a Genoese station, and part of the walls of the fortress show it to have been originally well built. One wall rises on the edge of a steep precipice, forming one side of a ravine in which the Murád runs: the other walls rise from the plain. It might easily be made defensive against Kurd assailants, but could not be converted into a strong position. It ought not, however, to be allowed to continue in its present dilapidated and defenceless state.

8th.—Just as we were about to mount, after having had our tents struck and our baggage loaded, my messenger returned

from Behlúl Páshá, who requested that I would defer my journey until the following day, as he considered the roads not quite safe, and would send me an escort of fifty men. However, I had proceeded too far towards a move to consider it expedient to defer our march; and as our party was strong, and we had a guard of fourteen horsemen, I did not apprehend there would be any risk of an attack; but I judged it prudent to keep in sight of our baggage-horses, and our progress was therefore slow. We started at 6 A.M., and did not reach Báyazid until 2½ P.M., although the distance does not, I think, exceed 18 miles.

We stopped on the banks of a beautifully clear stream called Gernáwuk, near a stone bridge, and from thence despatched a khaváss to advise Behlúl Páshá of our approach, and to select a good encamping station near a village which lay at the foot of the hill on which Báyazid stands. Midway from Diyádin, Báyazid, or rather the palace of the Páshá, becomes first visible, placed on a crag, on the sides and at the foot of which the city is built. A plain of more than 15 miles in extent intervened between 'us and the foot of Aghrí Tâgh, or Mount Ararat, which elevates its snow-capped peak in majestic grandeur. By its side rises the smaller peak, without snow on it, which appeared insignificant in the neighbourhood of its gigantic brother. The two peaks are quite distinct and detached from the rest of the range, which they seem to look down upon in proud superiority. Near the point alluded to, half way to Báyazid, the ground is strewn with fragments of lava, of which also the rocks rising above the earth are composed. The stream of lava has not come from the main peak itself, but from a part of the range between which and Ararat intervenes a plain. That the ark, after the flood, rested on this mountain would seem to admit of doubt. Its height and its inaccessible nature is against the supposition, and the climate of the neighbourhood is too severe for the olive. I heard from Háfiz Páshá that Mount Júdí, near 'Amadíyah, is, by the Moḥammedan writers,* stated to be the Mount Ararat of Scripture; and I since perceive, in Mr. Rich's Journal, that in the country round Mount Júdí a long course of traditionary history records this fact. It may be remarked that in the neighbourhood of Báyazid there are no traditions respecting the ark, and the natives know the mountain by no other name than Aghrí Tâgh.† We saw no mounted Kurds on our road, but a few on foot conducting some sheep and cattle towards the frontier. They said they belonged to the Zelánlí tribe, that they came from Georgia, and were going to join their tribesmen in Persia.

In the afternoon a high wind arose, and continued during the

* They only say that the ark of Noah rested on Mount Júdí.—F. S.

† Aghrí Tâgh, Painful Mount, not *Egri*, "Crooked."—F. S.

night. It occasioned a very disagreeable dust, and the blast was so strong that I was apprehensive our tents would be carried away. Towards morning it fell calm; but at noon, or soon after, the same inconvenience occurred, and during the four days we were at Báyazíd a strong breeze regularly returned. The dust on the terrace was so annoying that we removed into a room, which, though in a dilapidated state, we found more agreeable than our tent.

The Commandant of the battalion of troops stationed here paid me a visit. He complained of inactivity in a place of so little resource as Báyazíd, and said his troops suffered in consequence. I asked him why he did not employ them to keep the Kurds in check. He was placed, he replied, under the orders of Behlúl Páshá, and could do nothing of his own accord. The same afternoon a man came from the Páshá to say that he had been named Mihmándár, and desired to know when I intended to start. I had, after some trouble, succeeded in hiring an 'arabah for the use of Dr. Dickson, as he was unable to ride; and I fixed two days afterwards for our departure, expecting he would by that time be able to bear the journey.

The insecurity of the country, the illness of Dr. Dickson, the disagreeable wind and dust, and the cloudy weather, indisposed us from visiting Ararat; and the latter rendered all observations, either astronomical or with the theodolite, impracticable. On this account our stay was most unsatisfactory in all points, and we were anxious for the moment of our departure from Báyazíd.

From the only occasional glimpses we obtained of Aghrí Tágh (Mount Ararat), I judged that the snow descended about 2000 feet below the summit, which should give 12,000 feet as the approximate height of the mountain. On the morning of our departure the lower peak was covered with a slight coating of snow, which had fallen the previous night. The city of Báyazíd is situated among the crags, and in a sort of recess of a range of mountains facing Aghrí Tágh, which rises on the opposite side of a plain about 8 or 10 miles wide. The Páshá's palace, a handsome stone building superior to any I have seen in Turkey, is built on the very summit of a peak, and looks down on the town. The mountains, however, around are still more elevated: from them the Russians brought guns to bear on the palace, and after a few shots had struck it the town surrendered. It is now in a most dilapidated and ruined state, the bázárs are wretched and ill supplied, and the place does not wear the appearance of commercial activity. The people appear an uncouth and ill-disposed race, and have contracted the rude manners of the Kurd tribes by which they are surrounded, and with which they are in constant contact. After Eriván (Reván) came into the possession

of the Russians, and they established a quarantine on their frontier, all active intercourse between Eriván and Báyzíd ceased, and from that time the latter may date its decline, which was rendered more complete by the emigration of the greater part of the Armenian population with the Russian army.

The ancestors of Behlúl Páshá have for several generations ruled the Páshálik of Báyzíd, nominally as a dependence on Erz-Rúm; but Mahmúd, the father of the present Páshá, established a real independence, and was a powerful though lawless chief. He built the palace, and obliged the Kurds to bring him materials at their own charge. His former residence is situated on the opposite side of a ravine, in face of the new Palace: it is half excavated in the side of the mountain, and contains immense stores: it has also a battery of guns in an unserviceable state. The place is impregnable, except by the aid of artillery; and its position and character are well chosen for the residence of a chieftain like Mahmúd Páshá, who might be considered rather as the head of a band of freebooters than a páshá governing a wide district. On the summit of the same mountain, on the side of which this stronghold is placed, are the remains of a more ancient castle, which I suppose to have been the last of the stations of the Genoese. It was in the more modern castle that M. Jaubert was confined. He was sent on a mission to the Sháh by Napoleon, and was known to be the bearer of valuable presents. The Páshá coveted these; and, after forwarding M. Jaubert with an escort, despatched a band for the purpose, who attacked the party, blindfolded M. Jaubert, and brought him back to Báyzíd. He was then put with his Tátár and servant into a dungeon, the mouth of which opened in the floor of an apartment of the Páshá's harem. Here he and his companions were confined for about six months, and fed sparingly with bread and water. It was probably expected they would die in their confinement, and that no inquiry would be made for them, or no discovery of the mode of their death, while their valuable jewels would have become the property of Mahmúd Páshá; but M. Jaubert and his attendants fortunately outlived their cruel treatment. The Páshá fell ill and died, and his inhuman conduct towards the prisoners was supposed by his family to have brought on his head the vengeance of Providence, and as soon as he had expired, they regained their liberty. Behlúl Páshá succeeded to his father's dignity, and has held the office ever since, except for about a year. His execution of the duty assigned to him with respect to the recovery of the plunder made by the Jeláli Kurds, from a Persian caravan in 1834, incurred the displeasure of Es'ad, Páshá of Erz-Rúm, who named Demir Páshá to the Páshálik in Behlúl's stead; but the conduct of the former was so outrageously rapacious and violent that the inha-

bitants petitioned for his immediate removal, threatening that, if their demand were not complied with, they would emigrate to Georgia. Demir Páshá was in consequence displaced, and Behlúl reinstated, and has since held the office.

12th.—We quitted Báyazíd in the morning. Dr. Dickson started an hour in advance of the rest of the party, in order to give time for the buffaloes which drew his 'arabah to get forward at their slow pace. We took the direct road to Diyádín, the same by which we had reached Báyazíd. A dervish requested to join our party, to which I assented. I learned from him that he was a native of Bokhárá, that he had performed the pilgrimage to Mecca, and had been wandering about the world for twenty-two years, and was now returning to his country. He came last from Erz-Rúm, and had wished to have a guide from the Páshá of Báyazíd to conduct him to the Russian frontier, on his way to Eriván. This Behlúl Páshá refused, and he found himself constrained to retrace his steps to Erz-Rúm, from whence he proposed going to Gúmrí, and by Astrakhan (Azhderkhán) to Bokhárá. About midway I turned out of the road to a pleasant spring, around which were the remains of a village. It was at this spot that a short time previously a Khaváss of the Páshá of Erz-Rúm, returning from Báyazíd after delivering a message, was robbed. The Khaváss was accompanied by an escort of four horsemen: they were attacked by twelve Kurds; the Khaváss was wounded, and all were plundered. I reached Diyádín at 2½ P.M., having been 8½ hours on the march. Our loads preceded us, and the 'arabah reached the place ½ an hour afterwards. The wind was very high and the dust very annoying. The Beg civilly sent a supply of barley and straw for my horses.

13th.—We left Diyádín at 6 A.M. The morning air was quite cold. Our road led along a plain, and we had on our left the Murád Chái at a short distance only. After riding 3 hours we crossed the river opposite to the Armenian monastery of U'ch Kilisá (Three Churches), which we reached at 9 A.M. We pitched our tents on a piece of turf near the river, and were fortunately free from both wind and dust, by which we had been so much annoyed at Báyazíd and Diyádín. The head of the monastery paid me a visit, and tendered his services and the supply of whatever we might want. He informed me that the monastery derived its name of U'ch Kilisá, or Three Churches, from its having been the largest of three,—one of which there are some trifling remains of on the mountain above the present, and another in the plain, the traces of which have been entirely lost.

The convent was said to have been built A.D. 306, by the architect of Chángerí, after he had finished that; and from hence he

went to Ech-Miadzin,* where he erected the patriarchal church. This is a massive stone building, both larger and more handsome than the church at Chángérí; but the out-buildings here are less extensive and in a more dilapidated state. The court is surrounded by a very lofty wall. Many of the windows have been blocked up with stone in order to strengthen the walls, which show symptoms of decay; the church has thus been rendered very gloomy. One corner, which was severely shaken by an earthquake some years ago, has been rebuilt; another corner is in a tottering condition, and must come down if not soon repaired. I asked why the church at Ech-Miadzin did not send money to repair the damage. The answer was, that it expected money from them. This monastery depends on the patriarch of Ech-Miadzin, and the surplus produce of its lands are remitted to him; he, however, sends in return a few necessities. Half the body of St. John the Baptist is possessed by this church, and it is on account of the reputed miraculous powers of that relic that the monastery is a place of pilgrimage. Formerly the priests derived a large revenue from the contributions of devout pilgrims; but this source of wealth has almost failed, for the devotees are now very few. This defection has arisen from the depopulated state of the surrounding country, as well as from its insecurity. About thirty years ago, a great number of Armenian villages were scattered over the plain of Arishkerd, extending from Diyádín to beyond Mólá Suleimán, and many of them contained from 300 to 400 houses: now there are very few, and those only holding from twenty to forty houses, with the exception of two. The Armenians form a small proportion of the present population, for nearly the whole emigrated to Georgia. Within the last two or three years five villages have been re-occupied by families from the vicinity of Eriván. They are of Persian origin, a sort of gipsy tribe, and are called Terekemeh.† They are a people of unsettled habits and doubtful honesty.

About fifteen cottages round the monastery are occupied by peasants, whom the priests employ in the cultivation of their lands, but the greater part of their estates remain untilled for want of hands. The number of buffaloes, cows, oxen, mares, and sheep which I saw returning in the evening from the pastures showed that there did not exist anything like want in this community. In former times, the monastery was often plundered by Kurds; and Hasan Khán, who was Serdár of Eriván when it belonged to Persia, had once completely stripped it of all its treasures: latterly it has been tolerably free from serious depredation. A

* Three Churches.—F.S.

† That is, Turkománs who live like Gipsies, but are not Chingánéh, i.e. Gipsies.—F.S.

month previously, however, six horses had been carried off by the Kurds; but on application to the Páshá, five were recovered, and the value of the sixth was promised to be paid. Kurds often steal things in the hope that by some expedient a part may be retained, and, as there is neither shame nor punishment attached to the act, it is no wonder that it is often repeated, even without much chance of its being productive of gain.

The Murád Şú runs about 100 paces from the monastery: it was at this time an inconsiderable stream about 20 to 30 paces broad, with the water reaching to the horses' knees. In spring it swells so much as to be perfectly unfordable, and it can only then be crossed by a solid stone bridge situated about 1 mile lower down the river.

I inquired whether there was any library or manuscripts in the convent, and was told there were a great many books, but that they were in a state of confusion. I was admitted, however, into a dark room on one side of the altar, in which the church ornaments were preserved. I found a heap of books there covered with dust; but there did not appear to me to be more than 100 volumes. All I laid my hands on were Armenian books printed at Venice, on subjects connected with the church service. I found one Armenian manuscript bound, of which I asked the title; but the head of the convent replied that it was on religion. I suspected from his manner that he could not read it, and my suspicion was soon confirmed. He had spoken of a book in the collection, both the subject and language of which was unknown, which I expected at least to be Latin or Greek. After a search it was found, and proved to be the work of Moses Chorenensis, the Armenian geographer: half the page was occupied by the Armenian original, and the opposite half by a Latin translation. Had the priest been able to read his own language he must have discovered the subject of the work, and probably what was the unknown language. The head of the convent, though extremely obliging, was a dull, uninformed person, and quite unfit for the direction of a religious establishment.

After sunset, I received a visit from M. Scaffi, an Italian Catholic priest on his way to Persia. He had intended to have visited Ech-miadzin with a French gentleman named Boré, commissioned by the Academy of Sciences at Paris to explore the East. Both were stopped on the Russian frontier. After an application to Tiflis, permission was given to M. Boré to visit Ech-miadzin, but M. Scaffi was not allowed to enter Georgia, and was forced to return from Gúmri to Kárs, from whence he had come hither by way of A'ni and Kághizmán: he was going to Báyzíd, there to wait for M. Boré.

14th.—It was rather a long day's march to Kará Kilisá,* but all the intervening villages were inhabited by Terekemehs, and I wished to avoid stopping among them. We rose before daylight, and found the air unpleasantly cold. As I was about to mount, a caravan from Persia passed by, which had travelled through the night. A Russian major named Clemon was accompanying it: he had been purchasing horses in Persia for his government. He stopped to visit the church. I saw him for an instant, but as he spoke only Russian and German we could hold no conversation, and we had no intercourse on the road; he travelling by night and I by day, it would have been impracticable under any circumstances.

We commenced our march at 5½ A.M. At about 2 hours we passed a village named Allegúr, situated on a stream which immediately below the village falls into the Murád. Here we met a large caravan reposing after a night's march. The goods belonged to Georgian merchants, many of whom accompanied them, and were destined for Tabríz; they were chiefly of British manufacture. The muleteers were Persian, who always prefer night to day journeys; the reason of this preference in summer is obvious, but the custom is commonly followed even in winter, and its advantage at that season it is difficult to imagine. Soon after quitting Allegúr we met the Murád at a bend in the river: in descending to its banks we came suddenly upon a large party of horsemen; they were from Kárs, and were escorting about fifteen families of Zibellí Kurds on their way to join their tribe in Persia. The Kurds were accompanied by their wives, children, cattle, tents and household furniture. We were on the right bank of the river, and kept near it, as it wound through a narrow valley with luxuriant grass. On the opposite side of the river we saw the village of Kalasúr. After a time, the Murád made a bend to the left, and we ascended a bank forming the boundary of the valley, and then rode over a sort of table-land, the river running in its valley on the left side, while on the right was a plain with several small villages. The soil of the table-land was rich, but very little cultivated; in fact, the scanty population of the plain is insufficient to cultivate half the land, and wide tracts of fine ground are waste. Below the plateau, in the valley of the Murád, we passed a village named Ziró, and towards the termination of the plateau, another named Yúnjahlí (Lucern Ville), similarly situated. All these villages are inhabited by Terekemehs. The table-land itself may be 11 or 12 miles in length, and is terminated beyond Yúnjahlí by a bluff, round which the streams of the right-hand division of the plain flow to join the Murád. We had

* Black Church.—F.S.

from hence a view of Şapân Tâgh on the horizon : it was covered with snow very far down, and the mountains bounding the plain on our right had also a slight coating. About 1 hour from the end of the table-land we reached the Armenian village of Karâ Kilisâ, so called from a church in ruins built of a dark-coloured stone. The village contains thirty-five families, all Armenian. The Murâd was not far distant, and, after passing through a break in the low hills which had to that point bounded its southern bank, it takes a more southerly course, from Diyâdîn it having been nearly W. Before the river passes through this break, it is joined by all the streams which flow from the mountains on the northern side of the plain. The distance from U'ch Kilisâ to Karâ Kilisâ I estimated at about 24 miles, the road level and excellent the whole way. At Karâ Kilisâ I found Lieutenant Lynch, who had come from Baghdâd by way of Erz-Rûm with despatches for Persia.

15th.—We began our journey at 5½ A.M.: the weather was chilly, cloudy, and threatening: however, it cleared off as the day advanced, and long before mid-day became hot. We met to-day several caravans, and with those of yesterday they must have been conveying at least 1500 horse-loads of European merchandise to Persia.

At 7½ A.M. we stopped at a small Kurd village named Móllâ 'Osmân to procure some breakfast; but after much difficulty a little bread, a few eggs and some milk only were produced, the caravans having consumed all the provisions. The village contained but seven families. Near it ran the Sheriyân Sû, which, coming from the low mountains bordering the plain of the same name westwards, falls into the Murâd at the break in the hills before mentioned. We afterwards passed near another small Kurd village, and at 2 P.M. reached Móllâ Suleimân. The distance from Karâ Kilisâ may be called 18 miles.

The plain of Arishkerd extends 2 or 3 miles further W., and reckoned from Diyâdîn its whole length is not less than 40 miles, with a breadth varying from 6 to 16 miles. The soil is rich, and the plain abundantly watered, containing about thirty villages, three only of which have Armenian inhabitants. Karâ Kilisâ and Móllâ Suleimân are occupied by them exclusively, and of the 200 houses of Toprak Kal'eh half are Armenian. All the remainder of the inhabitants of the plain, except the few at the monastery of U'ch Kilisâ, are Kurds and Terekemehs. Móllâ Suleimân has thirty-five families, but the other villages, except those particularly mentioned, are small. The plain certainly could easily maintain double the number of the existing villages, even were they all large; and it is lamentable to see so fine a country comparatively deserted. Beyond the low range of Sheryân Tâgh

a plain is said to succeed, extending to Malázgerd, a distance of about 36 miles. From the latter place to Khinís I believe the country to be generally level, the distance probably 24 miles, so that from Khinís to Diyádn there is a nearly continuous plain of about 100 miles.

Toprák Kal'eh, the principal place in this plain, and the residence of the Beg, the son of Behlúl Páshá, is distant from Mollá Suleimán 4 or 5 miles E., and is situated close under the mountains. The afternoon was overcast, and the clouds at last burst in thunder and heavy rain, which lasted about four hours. During the night the rain again fell in torrents, and our tents were so saturated with water that it would have been inconvenient to have moved, so I resolved to give our horses a day's rest, and Dr. Dickson time to recruit preparatory to a long ride; for 'arabaks cannot cross the range of mountains which separates the plain of Arishkerd from that of Pásín, and we had no means of avoiding this range.

16th.—A gholám (servant) of the British envoy in Persia passed with despatches on his way to Erz-Rúm. I found we were obliged to make a long march from Mollá Suleimán to Delí Bába (Mad Papa). The Kurd inhabitants of the villages near the road being still at their pastures, we could not have procured food there either for ourselves or our cattle. There are two passes over the mountains. One leads through the village of Dahar, and is always used by caravans, and most frequently by travellers, being open both summer and winter. The other winds under the Kóseh Tágh; is seldom taken by travellers even in summer, never by caravans, and in winter is stopped up by snow. It is shorter than the Dahar pass, but more mountainous, and on that account, as well as from its character of insecurity, is usually avoided. I chose it, however, because it was the least circuitous.

17th.—Mollá Suleimán is directly under the peak of Kóseh Tágh. We mounted at 6 A.M., and immediately commenced the ascent. We passed close under the peak, which is a bare cone. On account of its rising from a range in itself lofty, it did not impress me with the idea of great elevation; but, from its appearance when viewed from Şapán Tágh and other distant points, it cannot be less than 8500 or 9000 feet. Snow does not remain on it in summer, and it was entirely free at this time. We afterwards passed through a valley called Chat Dereh-sí, from a village of which nothing is now distinguishable but the site, from some existing mounds of earth and stone. Several ravines unite at the point where the village stood, in the recesses of which Kurds used to conceal themselves, and watch unseen their opportunity of plundering caravans or travellers. This probably

occasioned the ruin of the village, and the abandoning of the route. Not longer ago than in 1835, a Tátár was plundered close to the site of Chat; he was conveying jewels to Persia, and was wounded in defending his charge. No robbery has since occurred—partly because the route has been seldom frequented, and partly because the Kurds have since that time been held in check more effectually than before. From Chat we ascended a narrow ravine, with a stream running down it, and thick underwood on its banks. At the top we crossed a bare ridge, and immediately descended into another pretty valley with fine pastures, but without either villages or cultivation. We might, by following this valley, have reached Delí Bába; but the route was circuitous, and we therefore crossed a range to shorten it. We passed above a Kurd village, situated high up in the mountains, called Hájí Khalíl, and we descended upon Delí Bába, reaching it at 3 P.M.: we rode 9 hours without a halt, and the distance could not be short of 26 or 28 miles. Our baggage reached us 2 hours afterwards. After passing Hájí Khalíl Dr. Dickson was so fatigued and in such pain that he could not ride further, and, an 'arabah being fortunately obtained in the fields, he was conveyed in it to Delí Bába.

While waiting for our baggage we were entertained by the Kyayá of the village with an excellent repast: he was a civil man, and furnished us with everything we required without making any difficulties. The village is inhabited solely by Armenians, of whom there are 35 families. If I might judge by the large heaps of grain collected to be trodden out, I should say the peasants were well off; but the usual complaints of oppression were made. The Kyayá regretted much not having followed the Armenians in their emigration: he said, from the persons visiting them, they knew that their countrymen in Georgia were pleased at the conduct of the Russian government, and at the determination they had taken.

This village is the property of Selím Beg, an officer of the Sipáhís,* at Erz-Rúm. He receives, as lord of the soil, 100 somárs of wheat, equal to about 1100 Winchester bushels, worth between 80*l.* and 85*l.*

There is a Turkish tomb here, from which probably the name of the village is derived: it is a building of some size, and devout Mohámmédans, in passing it, stop to pray. The Armenians could not give any account of the tenant of the tomb, nor any explanation whence the name of the village was derived. The Aras flows about 2 hours north of the village.

18th.—Leaving Delí Bába, we rode over the undulating sur-

* Cavalry; but Sipáhi (seapoy) is a general term in Persian for soldier; Sipáh "army;" Sipáhi, "belong to an army."—F.S.

face of the plain of Pásin; and at 2 hours, passed the village of Batán Kõi on our right: below it runs the Aras, and on the opposite side of the river the K̄asabah of Khorásán was visible, through which lies the road to K̄árs. A little further on, we came to the village of Yúz-veren, where we procured some breakfast, and half an hour beyond it, we passed the large village of Komasúr, and afterwards the smaller village of Mendiven. Continuing our journey, we came to the village of Emrakúm, where we encamped. The day's march occupied $6\frac{1}{2}$ hours, and the estimated distance was 18 miles.

19th.—During the night a Khaváss arrived from Mr. Suter, who had been informed of our approach, and who intimated his intention of meeting us at Hasan Kal'eh. We mounted early, and in 1^h hour reached Kópri Kõi (Bridge Village), so named from a stone bridge called Chóbán Kópri (Shepherds' Bridge), which crosses the Aras. In the previous spring, part of it was washed away, and it was now undergoing repair: the new portion was built of stone, in keeping with the rest of the edifice, but it gave way soon after its completion, either from the foundations being defective, or from the frost's having decomposed the mortar before it was dry. The Bîn gól Sû and the Hasan Kal'eh Sû pass through different arches, and first unite their waters below the bridge. We forded the river after the junction of the branches: it was there broad, perhaps 100 yards, and it reached to the horses' girths.

From Kópri Kõi to Hasan Kal'eh we were $2\frac{1}{2}$ hours, and I estimated the distance from Emrakúm at 12 miles.

We pitched our tents in their former position near the baths. Mr. Suter and his party arrived soon after we were settled in our tents. During the night we were robbed: Dr. Dickson lost all his clothes, Mr. Glascott his clothes and surveying instruments. The Beg was informed of the robbery, but no detection followed. The thieves were skilful and bold; they drew the curtain-pegs, and from under it drew out the things: many were in contact with Mr. Glascott's bed, but neither he nor any individual of our numerous party heard the thieves, and the loss was not discovered till the next morning. We had had two guards to watch during the night, but they pretended not to have heard anything, and they must either have been asleep or accomplices with the robbers. Some months afterwards the principal part of the loss was repaid by the Beg, through a requisition to the Páshá.

21st.—We passed the preceding day reposing and enjoying the baths, and this morning rode into Erz-Rúm. Near the city I was met by my friends and acquaintances, native as well as European, and by an officer and party deputed by the Páshá to compliment me on my return.

HEIGHTS of the Barometer and Thermometer, observed by Dr. E. D. Dickson, M.D., on a Journey in Kurdistan in 1838, in company with Mr. Consul Brant.

1838.	Name of Place, &c.	Baromr.	Fahr.'s Therm.		Height in feet above the Black Sea.
			At-tached.	De-tached.	
June		INCHES.	°	°	
—	Trebizond (at the British Consulate); mean for the month	29.892	68.8	70.4	97
—	Erz-Rúm; by mean of 60 observations in April, 1838	22.192	61.8	57.7	6,114
16th	Kurújuk; mean of 4 observations	24.623	58.7	58.	6,007
17th	Hasan Kal'eh; mean of 6 do.				5,505
"	— temp. of bituminous springs—80, 93, 96, 81, 72 degs.				
18th	— temp. of different not ferruginous springs—103, 92, 88, 94, 95, 100 degs.				
19th	Highest peak over Hasan Kal'eh	22.974	63.	57.5	7,305
"	Aras, at the bridge of ditto	24.556	63.	60.	5,478
21st	Highest point of mountain-pass, after leaving Ketiven	23.104	58.	51.	7,233
"	Eípler; mean of 2 observations	23.909	57.5	48.2	6,259
22d	Kólli	24.306	80.	64.	5,903
"	Aghverán	23.958	52.	51.	6,205
23rd	Old Armenian church, after leaving Parmak-siz	24.742	84.	64.	5,391
24th	Khinis (Khunús); mean of 3 observations	24.499	63.3	62.3	5,686
25th	Summit of hill immediately after passing Malakulásh	24.570	89.	63.	5,566
"	Gumgum	25.114	45.	44.5	4,836
26th	Murád Cháfi, a little below its union with the Chárbuhúr	25.866	90.	71.	4,138
26th	Kirawí; mean of 2 observations	25.837	56.2	52.7	4,123
27th	Chevermeh; mean of 3 observations	25.864	68.5	61.3	4,170
28th	Músh; mean of 2 observations	25.378	73.	75.	4,692
July					
—	Trebizond; mean for the month	29.849	73.5	74.9	97
2nd	Kizil Aghách; mean of 3 observations	25.593	74.3	71.	4,491
3rd	High point of mountain-pass	24.446	90.	71.	5,753
"	Highest do. do.	23.532	92.5	66.	6,799
"	Shin	25.332	74.	69.	4,777
4th	Highest part of mountain-pass	23.814	77.5	63.5	6,490
"	Nerjki; mean of 2 observations	26.453	78.	74.7	3,550
6th	Darakol	26.950	76.	66.	2,993
7th	I'líjeh (Warm Spring)	26.226	73.	71.	3,779
"	Temperature of a spring of water at I'líjeh			57.	
8th	Khiní; mean of 3 observations	27.036	76.3	73.1	2,924
9th	— temp. of a reservoir of water supplied by many springs			57.	
10th	Pirán	26.922	81.5	80.	3,049
"	Temp. of a spring of water at Pirán			59.	
11th	Ditto, just before reaching Arghaná Ma'den			63.	
"	Arghaná Ma'den	26.370	85.5	82.5	3,644
12th	Kizin	25.528	75.	72.	4,568
"	Summit of hill, just before descending into the plain of Kharpét	25.214	65.	65.	4,864
24th	Mezirah, near Kharpét; mean of 15 observations	26.405	88.	87.1	3,618

1838.	Name of Place, &c.	Baromr.	Fahr.'s Therm.		Height in feet above the Black Sea.
			At- tached.	De- tached.	
June		INCHES.	°	°	
26th	Kharput	25.328	71.5	68.5	4,832
"	'Aliahán	27.164	92.5	89.	2,781
29th	Pálú; mean of 2 observations	26.704	83.	83.	3,292
"	Murád Chái at Pálú	27.142	83.	79.5	2,819
30th	Mezirah	24.886	66.	66.	5,245
"	Chevlí	26.246	89.5	85.	3,778
Aug.					
—	Trebizond; mean for the month	29.918	74.06	75.26	97
1st	Yókáreh Pakengog	25.052	82.	81.5	5,204
9th	Bitlis; mean of 3 observations	25.100	..	77.83	5,156
"	— Sherif Beg's House	24.855	..	81.5	5,475
13th	Lake of Ván; mean of 2 observations	24.782	..	68.	5,407
15th	— temp. of the water near shore. . . . .	..	..	75.	
"	do. of the air at the same time. . . . .	..	..	66.	
16th	Temperature of two springs of water near } the Castle of Vastán, on the borders } of the Lake of Ván . . . . .	..	..	52. 53.	
24th	Temperature of a spring of water close to the bridge over the Bendi-máhi-chái . . . . .	..	..	55.	
Sept.					
1st	Temperature of the air in the shade on the summit of Şapán Tâgh; 1 P.M. . . . .	..	..	48.	
2nd	Temperature of air in the shade at El-jiváz; 2 P.M. . . . .	..	..	80.	

POSITIONS IN KURDISTÁN, astronomically determined by A. G. GLASCOTT, R.N.

Name of Place.	Latitude North.	Longitude East of Greenwich.	Variation.	
			Date.	West.
Erz-Rúm (British Consulate)	39 55 20	41 18 30	1837-39	4 36
Kurújuk	39 57 12	41 32 0		
Hasan Kal'eh (south extreme of fortress)	39 58 55	41 43 40		
Ésb-ler	39 49 22	41 45 30	" 47	4 0
Aghverán	39 28 40	..	" 47	4 26
Khunús, or Khinis Kal'eh	39 21 42	..	" 47	4 10
Kerawí	38 53 16	..	" 48	4 52
Músh (Old Seráí)	38 46 30	41 29 30	" 49	4 16
Mezirah (near Kharput)	38 40 32	39 16 15		
Pálu (Surraf's House)	38 42 52	39 58 15		
Mezráh	38 49 0	40 10 30		
Chevlí	38 53 20	40 27 40	" 58	4 46
Kháss Kól	38 43 12	41 38 00		
Bitlis (Sherif Beg's House)	38 23 54	42 4 45		
Ván (Páshá's Doctor's garden)	38 29 0	43 10 35		
Arnis	38 58 20	43 28 50	" 64	4 50
Arjáh	38 58 54	43 11 30	" 65	3 40
'Ad-el-jiváz	38 48 0	42 35 30		
Diýádín (a little N. of the village)	39 32 36			
Báyazíd	39 31 40			
U'ch Killáá	39 38 23	00 38 0*		
Móllá Suleimán	39 48 40	01 24 0*	" 70	4 15

* Difference of longitude W. of Báyazíd.

Note respecting the Map of Kurdistan. By Mr. GLASCOTT, R.N.

The map of Kurdistan, on the scale of 6 inches to a degree, though not entitled to consideration as a document of strict accuracy, yet will, I trust, be found sufficient to elucidate the geography of the tract of country which it embraces.

The instruments at my disposal were a Theodolite and pocket-Chronometer, kindly supplied me by Lieut. Graves, now in command of the survey of the Grecian Archipelago, and a Sextant by Cary, graduated to 15".

The map is constructed on a basis of twenty-two astronomical positions; of these, the Latitudes of thirteen are deduced from observations of the pole-star, and computed according to the rule published in the Nautical Almanac; three are deduced from the mean of the method just mentioned, and circum-meridional Altitudes of the sun; two are from circum-meridional Altitudes of the sun alone; and one (that of Báyzid) from equal altitudes of the same body, which, of course, is to be considered but as approximate; the other three approximates, viz. Mezirah, Chevli, and Kháss Kóí, were deduced from observations of the sun off the meridian.

The Meridian Distances were measured by Chronometer, and applied to Erz-Rúm, adopting the Longitude of that place, deduced from the observations of the officers of the Imperial Russian Staff, as correct.

The route is laid down from Magnetic Bearings taken with the Theodolite at every turn of the road, corrected for Variation, and the Distances are deduced from time carefully noted on my arrival at and departure from each station.

Although on the route from Músh to Mezirah no astronomical observations were taken, yet my road-book gave the Latitude of the latter place within one minute, and the Longitude within seven of the astronomical position: these errors I applied proportionally to each station from whence bearings and distances had been noted, and the change in the positions of some of the towns on that route, by so doing, was scarcely perceptible. Wherever the distances by my road-book fell short between two positions astronomically fixed, which they invariably did, I always adopted the method of proportioning above alluded to.

On reference to the map it will be perceived that a great portion of our route round the Lake of Ván was contiguous to its shores, and in many instances so close as to enable me to sketch their sinuosities with tolerable accuracy. I had an opportunity of ascertaining from the summit of Şapán Tâgh the contours of those parts which from the direction of the road I was prevented

visiting, and of obtaining tangents to the principal points and bends of the bays; so that on the whole the general shape of the Lake has been satisfactorily ascertained.

The meridian distances of the positions on the shores of the Lake with respect to Ván, deserve some degree of confidence, as the difference of Longitude by Chronometer between it and El-jiváz (the last station at which I observed) agreed within 30" of that deduced from their Latitudes and an Azimuth.

The position of the summit of Şapán Tâgh was ascertained by Azimuths taken at Ván, Arnis, and Ardîsh; but as my Theodolite in point of accuracy was not what was to be desired, I have omitted inserting it in the table of astronomical positions.

A. G. GLASCOTT, Royal Navy.

Erz-Rûm, 15th July, 1839.

X.—*Notes on a Journey from Erz-Rûm to Trebizond, by way of Shebb-khâneh, Kará Hîşâr, Sîvâs, Tókât, and Sîmsîn, in October, 1838.* By HENRY SUTER, Esq., her Majesty's Vice-Consul at Trebizond. Communicated by Viscount PALMERSTON, G.C.B.

I LEFT Erz-Rûm on the 6th October, 1838, and proceeding along the plain in a westerly direction for about 6 miles, passed the little village of I'ljeh. It is remarkable for two warm springs (whence its name) of the temperature of 100° of Fahrenheit, which are used as baths, and much frequented during the fine season by the inhabitants of Erz-Rûm and its environs.

The road thence lay over undulating ground and low hills, bearing no signs of cultivation for about 12 miles. Descending from these through a ravine to a valley, we forded the Kará-Sû, or Western Forât, and reached the post-station of Ash-ka'ah. This village, 9 post-hours from Erz-Rûm, is prettily situated under a rock on the N. bank of the river, among low willows and other shrubs, and contains fifty families.

Quitting Ash-ka'ah, we continued a westerly course, parallel with, but above the river, for about 8 miles: we then descended to the banks of the stream, which was here about 100 yards in width. We quitted the river where it bends to the S., and still keeping our westerly course, soon crossed a wild rocky ravine, called Sheitân Dereh-sî (devil's vale), and finally reached a cultivated plain, in which was the post-station of Kará Kûlâk (black ear), 16 hours from Ash-ka'ah. The village contains fifty Musulmân families. From Kará Kûlâk we still kept a westerly direction, and crossed a hill to a ravine which opened gradually out into an extensive and well-cultivated plain.

We passed Lóri, a village with about 150 houses, and 4 miles further crossed a road leading in a south-westerly direction to Erzingán.

After passing over some wooded mountains we came upon a river called Kará Sú,* flowing through a narrow valley from the eastward. It was here shallow, and not above 20 yards broad. We pursued its northern bank for about 6 miles, and then fording it, came to a plain; and after two miles further reached Kerkít Chiftlik.† This village contains about twenty good stone-built houses, besides, perhaps, forty others; some constructed of logs, and some of unburnt bricks. This is the centre of a Sanjak, or Commandery, dependent on the Páshalik of Trebizond (Tarábuzún), containing forty villages, which, among them, number between 600 and 700 houses.

A mile beyond Kerkit Chiftlik we reached the post-station of Gernerí, which is 12 hours distant from Kara Kúlák. It is situated on the south bank of the Kará Sú, and contains about thirty Musulmán families. We forded the river where it was about 20 yards in breadth, and mounted some low hills: 3 miles beyond which we traversed a pine-forest for 6 miles, and then came to the village of U'leh-Sheiván, 6 hours from Gernerí. There are here about thirty Musulmán families. This place is the centre of a district belonging to the Páshalik of Erz-Rúm, and comprising 200 or 250 houses. To the N. rose the lofty and snow-capped range of Gaúr Tágh. The winter is said to be very severe in this vicinity. A great deal of snow falls, and the road is sometimes impassable for many days. A post-road branches off hence to Trebizond, which is 30 hours distant.

From U'leh-Sheiván our route led us, by a steep ascent, to hills covered with large pine trees, among which we continued for about 18 miles; after which, a succession of low barren hills followed for about 12 miles, when we reached a narrow valley, through which ran a stream flowing from the E. Crossing this by a small wooden bridge, we ascended a high rocky mountain, by a steep and bad road. From its summit we discerned below us the Yeshil-Irmák (green river), or Iris, flowing from the E. On the opposite side of the valley, on a steep barren rock, was placed the town of Kará-Hisár, with the prenomén of Shebb-khánéh, from the alum mines in the vicinity. Descending into the valley, and crossing the stream by a wooden bridge, we ascended at first by a narrow rocky path, and then through gardens of fruit-trees, to the town, which is 18 hours from Sheiván.

* This is a different river from the Kará Sú, or Western Forát. It rises in the Almá-lí Tágh, and joins the river of Gúmish-khánah, before that river debouches at Tíreh-bóli, on the Black Sea, 50 miles to the W. of Trebizond.

† Kelkid: Jehán Numá.—p. 423.

The town is built near the summit of a high hill, and is overhung by a perpendicular rock, crowned with the remains of a fortress. The houses are mud-built, and in number 2500: 500 are inhabited by Armenians, 50 by Greeks, and the remainder by Mohammedans. The bázárs of *Karâ-Hişâr* are extensive, and appeared well-stocked with country-made cotton cloths, and Aleppo and Damascus woollens, with some English manufactures; but I was assured the demand for foreign articles of any kind was small. Some English cotton-twist is employed in the manufacture of cloth; and unbleached calicoes and Indigo are imported, the latter being used to dye the former: when dyed the cloths are retailed in the country. The traders procure their supplies from Constantinople: formerly they embarked at *Kerehisin* for the capital; but since the establishment of the steamers they generally proceed for that purpose to Trebizond.

From *Karâ-Hişâr* our course was south-west for about 4 miles, the road lying along the side of some low cultivated hills, overlooking a valley called *Tûmánlú Dereh* (misty vale). We descended into this, and forded a shallow but rapid river, flowing from the E., about 30 yards wide, the bed of which was 50 yards in width. This stream is, I believe, the *Yeshil-Irmak*, the same I crossed before reaching *Karâ-Hişâr*. From hence we turned out of the road to *Tókát*, which continues on the right bank of the river. We kept along the left bank, till we came to another stream flowing into it from the S. This we followed on its right bank till we forded it at a shallow part: we soon met another stream coming from the W., and turning up the valley, down which it flows, we shortly passed a small village, in which I observed a large and handsome building, the residence of Mohammed Beg *Mubbeh-óghlú*, the Musellim of the district.

The river was here diverted into numerous rills, irrigating the plain of *Ashkar*, which lay nearly E. and W. The hills which border it are cultivated at the base, which is studded with numerous villages. The plain itself, said to be in length 8 hours, or 24 miles, and about 4 miles in breadth, is highly cultivated, and very fertile. I was informed there are no less than 90 or 100 villages in it, a number I should not think exaggerated. The houses are built of rough stone, cemented with mud, and flat-roofed; and all are surrounded by orchards, which give them a cheerful appearance. Common fruits are abundant; and melons and grapes equally so. The harvest this year had been good, and more grain is at all times raised than suffices for the consumption of the population: the surplus produce finds a market at *Karâ-Hişâr*. Notwithstanding snow falls to a considerable depth the winters are mild. Most of the villages contain from thirty to fifty families, although several number from 150 to 200. The majority

of the inhabitants is Armenian. The people seemed healthy and robust, and of active and industrious habits. After the harvest is over, in September, many of the young men proceed to Constantinople, where they employ themselves as porters or artisans till about the month of February, when they return to the cultivation of their fields. I heard no complaints of indirect exactions; and the people appeared more contented, and less oppressed, than any I have met with in Turkey. This flourishing district is dependent on *Karâ Hîsâr*, and in the *Pâshâlik* of *Trebizond*. *Enderez* is situated on the left or S. side of the plain, on a rising ground, close to a narrow rocky ravine, down which rushed a mountain-torrent. It contains 50 Musulmán and 150 Armenian families. The distance from *Karâ Hîsâr* is 6 hours.

From *Enderez*, crossing the torrent, we ascended, in a south-south-westerly direction, some high barren hills, beyond which we proceeded by a narrow track along the side of a precipitous mountain, bounding a valley called the *Gemidereh* (ship vale), or *Gemî-beli-dereh* (ship-peak vale), through which ran a stream flowing from the N.E. Descending to it, we followed its W. bank by a rocky, difficult path. The E. side of the valley presented a high range of mountains, clothed from the summit to their base with fir, beech, and poplar trees. The W. side was bordered by steep rocky mountains, bearing only a few briars, juniper, and stunted oak. The scenery was wild and picturesque.

We passed the small village of *Gemî-Kôî*, containing about forty houses. These, with occasional shepherds' huts, were the only habitations we saw between *Enderez* and *Zarâ*. Leaving the stream on our left, we ascended a steep hill, from whence we discerned the *Kôseh Tâgh* (Mount Thin-beard), bearing W., a solitary mountain of great height, covered with snow as low as it was visible. Numerous flocks of sheep were grazing near us.

We now proceeded through a pine-forest, by a good road, which is traversed by 'arabaks or carts. A great deal of pine-wood was lying here prepared for transport to *Sívás*.

We ascended the range of the *Gemî-Tâgh* or *Gemî-beli*, (Ship-peak,) which was very steep, and occupied us an hour. The summit was covered with snow. We here met a traveller with some muleteers proceeding to *Trebizond*, who were the only persons whom we saw on this apparently unfrequented road, besides shepherds tending their flocks. We descended the mountain by a gradual slope, passing several extensive encampments of Kurds, and reached a broad valley, bounded on its S. side by perpendicular rocks of about 150 feet in height. Through this flowed from the N.N.E. the main branch of the *Kizil-Irmák*, here 30 yards in breadth, with a bed of about 20 more. We proceeded along its W. bank, and at a mile onwards crossed a tributary

from the N.N.W., and 2 miles beyond it another from the W.: each was about 15 yards broad. After fording the last we arrived at Zará, 12 hours from Enderéz.

From all the information I could collect, and from my own observation, I think the main stream of the *Kızıl-Irmák* rises in the *Gemi-beli* or *Gemi Tágh*.

At the entrance of the plain of Zará, and opposite the village, the rocks mentioned terminate in a cape, and the river at this point takes a S.W. course through the plain. Zará depends on Sívás, and contains about 300 families, half Musulmán and half Armenian; has a large mosque and a neat Armenian church recently built. The plain produces grain of various kinds, and is said to be fertile. This year the harvest had been an average one. The cold in winter is represented as not severe, although a good deal of snow falls. The people loudly complained of the exactions to which they were exposed; they had but lately been called upon to provide 12,000 kilós* of wheat and barley for the army of Háfiz Páshá. The plague and small-pox were prevalent in the village. Formerly this was a post-station, but the road to Kará Hisár is so little frequented that the government have abolished it. We procured horses, however, without difficulty.

11th.—From Zará we traversed the plain in a S.W. direction. It is about 3 miles in breadth, and 7 in length. At its extremity we reached some low cultivated hills, in crossing which we passed on our right a shallow lake about $\frac{1}{2}$ mile in circumference; and a little further on, in the same direction as the first, we discovered a second lake, about a mile in circumference, called *Tudurgí Gól*. Both were said to dry up in summer.

We descended to an extensive plain, where we again met the *Kızıl-Irmák*, here about 70 yards broad. On its banks we frequently saw pine logs ready to be floated down to Sívás.

We passed two considerable villages, one *Yenijeh* on the E., and the other *Yarasá* on the W. bank of the river. In these as well as in all the other villages we met between Zará and Sívás, plague and small-pox were raging. Our course still continued along the river's bank.

About 16 miles distant from Zará, at a point where there is a high rock on which stands the village of *Keimez*, having opposite *Kóç Hisár*, the river is joined by a considerable stream which flows from the E.N.E., down the valley of the *Periput-Dereh*. From this our road continued along the plain for about 12 miles: we then forded the river, here 100 yards wide, crossing to its E. bank. It turned soon afterwards into a narrow valley, confined between low rocks: pursuing the stream for about 3 miles

* Kíleh = 941 of an English bushel. 8501 kilehs = 1 quarter.—F. S.

we repassed it by a handsome stone bridge of six arches, about 60 yards in length, and soon entered the plain and discerned the city of Sívás, which is 3 miles from the bridge. The distance from Zará was 12 hours.

Sívás is situated in an extensive plain : on a rising ground is a dilapidated castle overlooking the town. There are in the city about 6000 families : from 1000 to 1100 are Armenians, the rest Mohammedans. The houses are well built, partly tiled, and partly flat-roofed, and intermingled with gardens : these, with the numerous minarets, give the town a general aspect of cheerfulness. The plague was so bad that I was cautioned not to visit the bázárs; but I had traversed them in entering the town, and observed that they were extensive and well stocked with most articles, including many of British manufacture. The consumption of Sívás, and the circumstance of its furnishing supplies to many places, cause its import trade to be extensive.

The merchants obtain supplies from Constantinople through Şamsún. A considerable transit trade passes through Sívás, to supply the many important places to which it is the road with European goods, and to convey the productions of the interior to Şamsún for shipment to Constantinople.

Sívás is under the jurisdiction of Háfiz Páshá, and is governed by his relative 'Alí Bey (Beg). I will here remark that throughout the districts I visited within the Ser-'Asker's territory, the most marked civility and attention were shown to me, such as I did not experience (though politely treated everywhere) in places in the government of other Páshás.

13th.—Leaving Sívás for Tókát, the course is about N.N.W. After quitting the town the road runs through narrow ravines for 10 miles. I then saw Yildiz-Tágh (Star Mount) the summit of which was clear of snow. For 20 miles further we rode over uneven ground, and then entering a cultivated plain, reached the post station of Arslán Tóghmish (Lion-born), a small village containing twenty Musulmán houses, 10 hours distant from Sívás. The post had only been recently established here, and is occasionally changed to other points as circumstances require. From Arslán Tóghmish, following the plain for 3 miles, we passed several small villages, in all of which the plague existed; we then traversed rocky ground and steep hills with low trees, and after crossing a barren table-land for 2 hours, the town of Tókát presented itself below us.

The approach is by a steep road down the face of a rocky mountain, at the foot of which we passed among gardens to the town.

Tókát is surrounded by hills which enclose it on three sides, the only opening being to the N.E. : a small stream runs through

the town in the same direction, which joins the *Tókát-Şú* a little below the city. On the summit of the rocky hill on the N.W. side are the ruins of a fortress. The town contains about 6730 families, of which 5000 are Musulmán, 1500 Armenian, 150 Greek, 50 Jewish, and 30 Roman Catholic. The houses are all tiled: a few are well-built and handsome: some are constructed of unburnt bricks; but the greater part being mere wooden sheds, give a character of meanness to the town. The streets are filthy and narrow, and from the eaves of the houses nearly meeting overhead, are very gloomy. There was so much plague at *Tókát* that it was unsafe to visit the *bázárs*: I was therefore unable to observe how they were provided. The place has lost much of its former commercial importance, and I was told that the import trade was limited to supplying the local consumption of the neighbouring villages. The merchants obtain what they require from Constantinople.

The cultivation of the yellow berry (*Rhamnus insectorius*) had been recently extended, and in many parts replaced that of the vine. It was said, however, that it had not succeeded well, proving inferior to that of *Kaşar*.

There is at *Tókát* an extensive dyeing establishment, in which British calicoes and indigo are used: there is also an establishment for printing on cotton, where about fifty men are employed: the cloths used are partly those of the country, but chiefly British muslins, of which a great many are thus required. At *Tókát* the copper from the mines of *Arghaná* is refined; but I could not obtain any information as to the quantity used. The copper is sent down to *Şamsún* for shipment. At *Tókát* fires are frequent, and one had occurred a few days before I arrived which consumed a large *Khán*, many houses, and considerable property. The heat, which is intense in summer, was even at this season oppressive. The luxuriant vegetation of the gardens in and near the town, the filthiness of the streets, and the abundance of fruit, occasion malignant fevers in summer and autumn. *Tókát* depends on the Beg of *Sívás*.

16th.—From *Tókát* to *Zileh* the course is about W.N.W., and on quitting the town you proceed through gardens to the plain, the hills bounding which on the right are barren, while those on the left are clothed from their summits to their middle with brushwood. About their bases vineyards and other plantations are seen. The plain is extensive and well cultivated, containing many villages, all surrounded by gardens. Six miles from the town we came to the *Tókát Şú*, and our road lay for a short time along its S. bank. The river is deep, rapid, and about 20 yards wide; and over it was thrown a neat stone bridge of one arch.

Without crossing the river we left it on our right, and passed

through the large village of Bázár Kōi, continuing along the plain for about 7 miles. Here cultivation ceases, and marshy pasture-grounds succeed. At this part we saw numerous encampments of Kurds, with large flocks of sheep and herds of cattle, with camels. We passed at a distance of 6 miles to the N. of our road the village of Túrkhál: it is 8 hours from Tókát, and the post station on the direct road to Constantinople.

Proceeding over waste marshy ground, and then crossing some low hills, we descended into the plain of Zíleh, which appears fertile, and contains several large villages. At a distance of 3 miles we arrived at Zíleh, 12 hours from Tókát. Just before entering the town we rode through vineyards, and met a small stream flowing past the town from the N.

Zíleh is built on a rising ground, surmounted by a fortress which commands the town, and is said to contain 2000 families, of which about 150 are Armenian. The kháns are large and numerous, and there are whole streets of good shops, which were nearly empty, as they are only occupied at the period of the annual fair. This takes place in the middle of November, and lasts from fifteen to twenty days. It is frequented by 40,000 or 50,000 people from all the commercial cities of Asia Minor, and Syria; and the town is then crowded to excess.

The trade carried on at this fair is chiefly one of barter. The merchant of Aleppo exchanges his cloths for the silk of Amásiyah, indigo, English cotton twist, and calicoes—the linen-printer from Tókát, his stamped handkerchiefs for the muslins and colouring materials required in his manufacture. With the exception of cotton-wool from Adanah, and silk from Amásiyah, I was told that but few of the raw productions of the interior are brought to this fair. A great deal of business is transacted during the fair; but at other times there appears to be no trade at Zíleh. The inhabitants are chiefly employed in the manufacture (from cotton of Adanah, spun on the spot) of a coarse flimsy cloth, used to a great extent throughout the country.

Yellow berries are cultivated; but here, as at Tókát, it was said they did not succeed. The plain produces nothing except grain; but more of that than is required for the consumption of the inhabitants: other necessities are procured from Tókát. Fruit is abundant, although not of a good quality, and the vine is extensively cultivated. This year the vintage proved a total failure.

17th.—From Zíleh towards Amásiyah the route is about N. The road for 3 miles leads through vineyards along a valley, through which flows the stream that passes Zíleh. We then proceeded over barren hills for about 4 miles till we came to the Altí Agháj Tágh (Six-Tree Mount), a thickly-wooded mountain of considerable height, the descent from which was steep and

dangerous: at its base we reached a ravine, where we met the *Tókat Şú*, considerably increased in breadth, flowing down a valley formed on the S. side by the *Altí Agháj Tagh*, and on the N. by a precipitous rocky mountain. Following the course of the stream we entered an extensive plain leading to *Amásiyah*. Near the hills the plain is well cultivated, and the banks of the river were bordered with mulberry plantations. We forded the stream, from which a number of wheels raise water for the purposes of irrigation. In every plantation there is a small house, in almost all of which the operation of reeling silk was proceeding. Our route lay along the plain, near the river, and constantly passing among mulberry plantations, till within 2 miles of *Amásiyah*. We finally entered a valley in which that town is situated.

Amásiyah is 8 hours from *Zileh*, and built on both banks of the river, between almost perpendicular rocks: a handsome stone bridge connects the two divisions. The houses are little better than wooden sheds, and have a very mean appearance. They are in number 3970, of which 3500 are Turkish, 350 Armenian, and 120 Greek. The *bázárs* are neat, and tolerably well supplied, although the import trade of *Amásiyah* is said to be insignificant. The place is chiefly interesting for the silk it produces, which is not sufficiently good for the English market. A small quantity only is exported to Constantinople: the greater part is used at *Aleppo* and *Damascus*. Some is purchased on the spot for its final destination; but the chief portion is taken for sale or barter to *Zileh*. The quantity produced is occasionally as much as 30,000 okes, or 82,000 lbs. An average crop, however, does not exceed 24,000 okes, or 66,000 lbs. This year the worms suffered from unseasonable weather, and the quantity is not expected to yield above half the usual average.

18th.—At *Amásiyah* I deviated from the direct road to *Şámsún*, in order to visit a hot spring at the little village of *Kavşah*, 8 hours distant. The course was about N.N.W., first through the valley in which *Amásiyah* is situated, and then across the *Şú-lú Ovak-sí*, a fertile and extensive plain, containing numerous villages. We came to its extremity after travelling 12 miles, and riding through a wooded valley for 4 miles, reached *Kavşah*. It is only remarkable for its hot spring, which is enclosed in a well-built stone bath, containing several apartments, in one of which the water may be made to rush at pleasure from the wall. It is tasteless, of the temperature of about 150° Fahr., and is said to be very efficacious in rheumatic and other complaints. It is much frequented in spring and summer by invalids from the interior, and from the coast. From *Kavşah* to the next station of *Qavák* (plane-tree) is 8 hours. *Qavák* contains about forty

Musulmán families, and has a post-house. Its distance from Şamsün is 8 hours. The road from Kavák lay for about 6 miles over the Perishán Tâgh (scattered or unfortunate mount), and then for about an equal distance across the Ma'múr Tâgh (inhabited mount). They are both lofty, thickly wooded mountains, and from the summit of the latter we discerned the sea. After descending over open ground by an excellent road for about 10 miles, we arrived at Şamsün.

Şamsün is within the limits of the Páshálik of Trebizond,* and is governed by 'Abdullah Beg, the brother of the Páshá. The town is inhabited solely by Musulmáns, of whom there are 450 families; and a village in the immediate vicinity, called Kádí-Kóí (Judgeville), is occupied by the Christians, and contains 150 families. At the eastern extremity of the town a fortress exists, now only used as a prison, in which the delinquents of the whole Páshálik are confined. At the western extremity there is a capacious warehouse, formerly a granary, but now converted into a receptacle for government stores, and for the copper and lead which come hither from the mines of the interior for shipment to Constantinople. The Chárshambah-Sú (Wednesday river), or Yeshíl Irmák (Green river), empties itself into the sea about nine miles to the eastward of the town. The roadstead is open, and reputed unsafe in winter by the native mariners; but the steamers which ply between Constantinople and Trebizond visit it twice a week, and anchor there for several hours. The Masters of these, and of some European merchant vessels, which have been at Şamsün, concur in opinion that with good ground-tackle a vessel might ride there with safety in any weather.

The bázárs, though small, are well supplied with merchandise. About their centre is a stone building used as a Bezestein, or retail-market, for the sale of manufactured goods; and there are besides it several commodious and large stone-built Kháns. The local consumption of foreign goods is trifling; and the only article which is used extensively is iron. As a place of transit the importance of Şamsün is satisfactorily shown by the fact that the steamers in four months brought thither from Constantinople 2480 packages of goods destined for the interior, and received on board for transport to Constantinople 4850 packages, the produce of the country. In the hands of a direct importer, a depôt here of various articles, as iron, indigo, British cotton-twist, unbleached cotton cloths, shawls, and perhaps some few other manufactured or colonial articles, would no doubt attract purchasers from the numerous towns in the centre of Anatolia, which are within an easy caravan journey of the place. The iron at present consumed

* Taráburún.

is principally Russian, but a little attention might probably introduce British into more general use. When the new Commercial Convention with the Porte comes into operation, Şamsún must increase in importance; for, independently of the neighbourhood's producing many exportable commodities, it is the most convenient port of shipment for the productions of the interior. The country inland, and the districts along the coast to the E. and W. of Şamsún, yield wheat, barley, maize, rice, hemp-seed, linseed, hemp, flax, hides, and bees'-wax, as well as large quantities of tobacco; and timber might be exported if the Porte would allow it.

From the interior wool, silk, galls, gums, and grain, are obtained. This variety of produce would afford return-cargoes to ships coming from England to Trebizond, which are now obliged to seek for employment in Russian ports.

The presence of the plague in so many places during the course of my journey often necessarily restricted the sphere of my personal observation. I annex an itinerary of my route. At Şamsún I embarked in the steamer on the 21st, and arrived the following morning at Trebizond.

Itinerary of a route from Erz-Rúm to Şamsún by way of Shebb Kháneh, Kará-Hişár, Sívás, and Tókát.

			Hours.	
From Erz-Rúm to Ash-Kal'ah	.	.	9	} Very fair roads, and the horses generally good.
" Karákulák	.	.	16	
" Gernerí	.	.	12	
" U'leh-Sheiván	.	.	6	} Mountainous, but road good, horses indifferent.
" Shebb-Kháneh Kará-Hişár	.	.	18	
" Enderez	.	.	6	} Part of road very bad, no posts; tolerable horses easily procured.
" Zará	.	.	12	
" Sívás	.	.	12	} Excellent roads and horses.
" Arslán Tóghmish	.	.	10	
" Tókát	.	.	8	
" Zileh	.	.	12	
" Amásiyah	.	.	8	} No post.
" Kavşah	.	.	8	
" Kavák	.	.	8	} Roads good, though moun- tainous, horses very fair.
" Şamsún	.	.	8	

153 hours.

XI.—*Notes on a Journey from Erz-Rúm, by Músh, Diyár-Bekr, and Bîreh-jik, to Aleppo, in June, 1838.* By Viscount POLLINGTON.

LEAVING Erz-Rúm on the 5th June, 1838, I slept that night at Hasan Kál'eh, 6 post hours distant to the E. on the high road to Persia, where I engaged horses for Khinis, 18 hours to the S. I had been informed by Mr. Brant, Her Majesty's Consul at Erz-Rúm, that, although there were no post-stations on the road from hence by Músh to Diyár-Bekr, I should find no difficulty in procuring horses from the villagers; which information, as well as all other from the same source, I found perfectly correct.

6th.—On quitting Hasan Kál'eh this morning, instead of following the road to Persia, we crossed the river, and turned off to the S.: after riding 2 hours in this direction we arrived at the little village of Ketiven, where we forded the small river Ketiven Chái, and began to ascend, which we continued to do rather more than 2 hours. Here we had a magnificent view of the plain of Erz-Rúm: the higher part of our road was still covered with snow. In rather less than two hours more we arrived at the village of Kóí-lí, which is built just above the level of the inundations of the Aras, here called Bín-Gól-Sú, at a distance of 12 minutes' ride to the northward of that river: this is one of those underground villages which so forcibly remind all travellers of the descriptions of Xenophon, and of which I had seen so many since entering Armenia; but, although the houses were precisely like those of most other Armenian villages, I was greatly struck by the different appearance of the inhabitants. I was told on inquiry that the original inhabitants had one and all migrated into the Russian territory at the close of the last war, and that a tribe of Kurds had taken possession of the deserted houses. Here we forded the Aras; but owing to the depth of the water were obliged to unload our baggage-horses and place our effects upon an 'arabáh, a kind of two-wheeled cart without springs, which was drawn by two buffaloes across the river, which here flows in a north-easterly direction. In less than 3 hours more we reached the village of Aghverán, which is spelt Ameran in many of our maps: it is, however, very difficult to obtain aright the names of places in this country, as the Armenian and Kurdish names generally vary from the Turkish and from each other.

7th.—Quitting Aghverán at 5h. 40m. A.M., we arrived at Khinis at 9h. 5m., having completed the distance of 18 post hours in 14h. 30m.: our horses, however, were much better than the general run of Turkish posters. The country through which we passed this morning is a fine rich plain of block loamy

earth: our road lay S., the mountain Chár-Ból* directly before us: at some distance to the left was a high mountain covered with snow, standing quite apart from the rest, over which it towered magnificently. This our Tátár informed us was the Seibán or Sapán Tágh, from which we must have been at a distance of 50 or 60 miles. On our way we passed some peasants sowing wheat, which they did in a very primitive manner: the sower walking before the plough cast the grain upon the ground among the high grass and weeds, and then over all came the plough, which was drawn by eight oxen: the grain was small but very white. Khinis is a small town, inhabited exclusively by Armenians: the number of its inhabitants has much decreased of late years, owing to emigration into the Russian territory. I saw here several Russian deserters, who complained bitterly of their present situation. The town stands on the bank of a river, which winds through the plain in every possible direction, but whose general course appears to be S.E.

8th.—We obtained good horses this morning to carry us to Músh: indeed I noticed the general excellence of the breed in this part of the country. After riding 8 hours in a southerly direction we came to a very steep descent to the river Chár-Buñur, which we crossed by a small stone bridge: our course was now S.S.W.: in 5 hours more we reached Sikáwah, an Armenian village situated near a remarkable conical hill on the western bank of the Murád Chái, or Euphrates.

9th.—On leaving Sikáwah we followed the valley of the Murád for 2 hours, and then crossed it by a stone bridge of fourteen arches: the river appeared to me at a rough guess to be about the size of the Thames at Maidenhead. In less than two hours more we forded the Kará Şú, a name about as common in Turkey as Black Water is in Ireland, and returned to the W., having gone considerably to the E. to reach a ford, which was deep enough to cause us some trouble. We entered Músh 5h. 15m. after leaving Sikáwah, having been 17½ hours in performing the distance of 15 post hours from Khinis. Our horses were very good; but I believe that our guides led us much further round yesterday than was necessary. I had sent on our Tátár before us to procure us lodgings: we met him at the gates of the city, and were taken to the house of an Armenian merchant, apparently one of the best in Músh, where I was most hospitably treated. Músh is very finely situated on and around a conical hill, at the foot of the ridge of Jebel Nimrúd, or Niphates. Its principal trade is in tobacco, which, though somewhat coarse, is in great estimation in all the surrounding country. The bázárs are large

* Chár-Buñur?—Ed.

and well supplied. I saw in them a good many articles of Persian manufacture, and some pieces of Glasgow shawls,* which many of the middle class of inhabitants use for turbans and girdles; though for girdles the cotton of Aleppo seems generally used by the lower orders, and Persian shawls by the higher. The chief trade, as throughout the East, seems to be in the hands of the Armenians, who are to the Turks in the proportion of three to four in the town: the villages around are entirely peopled by Armenians. There are seven mosques and four churches in the town, which is the chief seat of a small Páshálik, subject to that of Erz-Rúm: this information I received from my Armenian host. The vine is much cultivated in the immediate neighbourhood: the wine made here is excellent: the Armenians are the producers, but, unless the Turks of Músh are greatly slandered, are by no means the only consumers.

10th.—Early this morning I received a message from the governor of the town that he meant to visit me. He arrived about half-past twelve, and remained rather more than half an hour drinking coffee and smoking: he refused to drink wine, which was pressed upon him by our host. He then accompanied me on horseback as far as the gates. He was throughout extremely civil, though more anxious than necessary to force upon me a mounted guard of twelve men to convey me to the frontiers of the Diyár-Bekr Páshálik, as a protection from the Yezidí Kurds, of whom there are many between Músh and Diyár-Bekr. In order to satisfy him I took four men, three of whom I dismissed at the first village with the present which, I cannot help suspecting, was the only motive for sending them. We left Músh about 1h. P.M. Our road lay W. along the lower ridge of the mountains, having the plain of the Murád to our right: that river was plainly visible in the distance, but nearer us were the windings of the Kará Şú. The plain, at the extremity of which Músh lies, is studded with villages, all built in the underground manner of Armenia. We passed several Kurdish encampments during the day. In rather more than 4 hours we reached Kızıl Agháj (Red Tree), a large village, where I lodged at the house of the Kyayá, the best in the place, but dirty beyond description and swarming with vermin. The appearance of the villagers seemed to denote the most squalid poverty; yet, judging from the quantity of cattle, especially cows, which at sunset came pouring into the villages, they cannot be otherwise than wealthy.

11th.—The owners of the horses which brought us from Músh refused this morning to go any further: probably they had been frightened in the night; for, though they protested that they

* I believe the introduction of this article among them is mainly owing to the patriotic exertions of Mr. Brant.

knew the road no further, yet on being pressed they confessed their fears of the Yezidí, who, they said, were a blood-drinking race, who would never suffer us to pass through their country. After some delay the Khaváss of the Pashá of Músh contrived, by laying the neighbouring villages under contribution, to procure us fresh horses. After 4 hours' ride among the mountains we halted at a most lovely spot, where the abundance of wild flowers exceeded anything I had ever seen: the anemones and wild tulip, among the verdant grass, resembled a rich Persian carpet: large crimson peonies grew all around, and the air was perfumed with the odour of southernwood, while our guides and servants seasoned their bread with the succulent shoots of rhubarb, which grew wild in abundance. I had seen a great quantity in Músh, and was told that the finest rhubarb in Turkey was gathered in the neighbouring mountains. We now entered a pass between two high mountains, Dárkúsh Tágh to the right, Khándúsh to the left, of which the latter was the higher.

We rode on for 2½ hours more, having passed several mountain-streams, all flowing eastward, by the side of one of which was a large Kurdish encampment. Being anxious to see something of this curious people, I rode up to them, intending to remain the rest of the day. Our approach put the whole encampment into confusion; they had never seen Franks before; yet received us with the greatest possible good will: a separate tent was forthwith put up for us, carpets were laid down, and stakes driven into the ground to fasten our horses. The women were far the most active of the party: their wild looks, and long coarse black hair flowing over their faces, gave them the appearance of Furies. Some of the younger were very handsome; but beauty is short-lived among these people: they had no reluctance to expose their charms to our curious eyes. Our Tátár, who was but ill at his ease, assured me that we were now among these God-denying Yezidí. As soon as we were seated they brought us hot cakes and fresh cheese and curds: these they did not know by the Turkish name *yúghúrt*, but by the Persian name *máz*. I found also that bread, water, milk, bore the names of *nán*, *áv*, *shúr*.^{*} This struck me as strange, for those wandering tribes whom I had met with in Persia called all these things by their Turkish names, while here in the Turkish dominions they use the Persian, or at least very similar.

12th.—Immediately on quitting the tents of our hospitable entertainers we began to ascend: our road lay all day among the mountains, and execrably bad it was throughout. We met a

^{*} *Nán* pronounced *Nán*. These are pure Persian words, with the exception of *áv* for *áb*. The best rhubarb, vulgarly called Turkey rhubarb, comes from the mountains north of China.—F. S.

large Kurdish tribe on the move with their flocks, dogs, &c. About noon I rested some time in their tents, and I regretted to find that the effects of civilised vice and depravity had penetrated even here, for my services as a *hakim* were called into requisition by a miserable object whose countenance was horribly disfigured by the ravages of a loathsome disease. It was vain for me to protest my inability to assist him; I was assured that the disease was a Frank one, and only required to be treated by a Frank doctor. After having been eleven hours on horseback we made a considerable turn to the left of the road to reach the village of Kherín or Khems, the former being its Armenian, the latter its Kurdish name. This village is situated at some distance from the road in a ravine among the mountains, facing the S., among a great quantity of the largest and finest walnut-trees I had ever seen. It abounds with springs of excellent water, and the number of old people whom I saw there attest the salubrity of its position.

13th.—We now began to descend. In 2 hours we forded a river called by our guides Kolb Sú, S.S.W. Our road now lay along a succession of low sandy hills, thinly covered with several kinds of dwarf oak, one of which has a leaf resembling the willow. In 2 hours more we forded the river Pokreh, S.S.E.; in $2\frac{1}{2}$ hours more reached the Kurd village of Hájj A'ná, and in another hour the Armenian village of Teltafi. On this side the mountains the houses are no longer built in the half-underground manner with sugar-loaf tops, as in Armenia, but in the ordinary Turkish way, with flat roofs. Fruit-trees grow in abundance in and near this village; among others I noticed the Kharrúb, or locust-tree (*Ceratonia Siliqua*), which only grows in warm climates.

14th.—We set off this morning at 5h. 40m., and 50 minutes after forded a river, called by our guides Semch Sárum, small but deep, E.S.E., and at 8h. another, called by them Semes rái, S.E. At noon we had ascended the last pass, and commenced the descent into the plain of the Tigris, or, as the wanderers on its banks still call it, the Hiddekel; and in another hour we were within the small town of Khazeró. Here we were in a very different climate from that beyond the mountains: the heat was great, and the bazars were filled with fruit, chiefly mulberries, both white and black: here also for the first time I noticed the Lombardy poplar, which is common in Syria.

15th.—We rode 13 hours nearly due S. through the plain to Diyár-Bekr, which stands on a tufa-rock, on the western or Mesopotamian bank of the Tigris: from a distance its appearance is striking, but on entering I saw many ruined houses and wretched mud huts within the walls, propped up with marble pillars from some ancient building. The appearance of the town

is as though it had not been repaired since its destruction by an earthquake: I did not hear, however, that such was the fact. There is one fine square in the town; and before the residence of the Páshá, who was not there, being at O'rfah with the Turkish forces, were some very large old plane-trees. The streets generally appear to be built without any design or connexion with each other: the water is very bad, and after the fine springs we had left behind us we sensibly felt the difference. A large portion of the bázárs is set apart for the sale of ice, which is brought from the neighbouring mountains, and which all classes of the inhabitants use to render the water more palatable. Another great cause of annoyance proceeds from the clouds of dust which every breath of wind stirs up: on the whole Diyár-Bekr appeared to me the most unpleasant residence I had ever seen. That extraordinary disease the "*Bouton d'Aleppe*"* is very prevalent, probably from the effects of the water. I saw few persons whose faces were not more or less disfigured by it. We lodged at the house of a wealthy Armenian merchant, whose hospitality we have every reason to praise; but, though our lodgings were in appearance good, the extraordinary quantity of vermin which they harboured prevented us from enjoying the two days' rest we had here.

18th.—After the usual delay in loading our horses I left Diyár-Bekr at 3 h. 20 m. P.M., and, riding S.W. for 3 hours, arrived at some Kurd tents, where I remained all night. The water here was very bad. Our horses were much worse than any we had yet had: they were large, ill-shapen animals, of a completely different race from the small active horses on which I had crossed the Niphates, and their inferiority was painfully apparent.

19th.—After riding for 9 hours I found the weather so insufferably hot, and I felt besides so unwell from the effects of the water I had been drinking for the last few days, that I gladly took shelter among some black tents, the first I had seen to-day, where, as there still remained six hours to Síverek, I stayed the rest of the day.

The inhabitants of these tents and those where I slept yesterday were much poorer and more wretched than any I had yet seen. They complained much of the exactions of Háfiz Páshá, with what justice I cannot say. He certainly deserves from me nothing but praise, as I attribute the perfect safety with which I passed through his government in a great measure to the fear of

* This disease is here much worse than at Aleppo. It extends throughout the whole course of the Tigris and Euphrates and their tributary streams.—[It is commonly known as the *Vena Medinensis*.—F. S.]

his name. He has hitherto been most successful in reducing the disaffected tribes within his Páshálik to obedience.

20th—22nd.—In about 5 hours I reached Severek. The road both to-day and yesterday was extremely stony: the stones are evidently lava, and cover the sandy hills, over which I have been riding, so thickly as to hinder us very much. The town is built at the foot of a detached hill, on which are the remains of a fortress now in ruins. The dust which flew into our faces on riding through the narrow streets almost blinded us. There were no horses in the town, but in the course of a few hours were collected from the neighbourhood, so as to enable us to ride on some hours in the early part of the night.

On the road between Severek and O'rfah we passed several small hillocks, apparently tumuli. We met no one on our way; all the villagers were in tents; nor did we see many of these till within a few hours of O'rfah, where the water is much better, and there are several fine springs by the road-side. O'rfah, the ancient Edessa, is still a large place. It is situated on a spot where the low sandy hills which form the northern frontier of Mesopotamia assume a bolder aspect: here they are of chalk mixed with flint. Immediately on entering, we were obliged by the guard to present ourselves before the Páshá: he received us civilly, but not very cordially. I was not the bearer of any letters to him—indeed I had not contemplated taking this route till after my arrival at Erz-Rúm—and he seemed at a loss to conceive the object which had brought me there. He talked of Colonel Chesney's late expedition on the Euphrates, and evidently supposed I had political objects in view, either connected with that expedition or with the view of comparing the Turkish army with the Egyptian, which I should see at Aleppo or Antioch. On this point he was naturally sensitive; for such is the difficulty he has in recruiting his troops, that mere children are pressed into his service. After having given us coffee and pipes, he offered us horses to pursue our journey, which, taking as a hint to be off, I thanked him for and retired.

Here I was much disappointed on finding that there yet remained 18 hours to Bíreh-jik, which (judging from the maps, which are wrong) I had not supposed to be much more than half that distance. I rode on in the cool of the evening to some tents 4 hours off. The poor woman of the tent was crying bitterly for the loss of her son, who had been that very morning taken from her to become a soldier. It seems that the conscription is going on with unusual rigour at present.

23rd.—This morning I passed by the remains of some large buildings, of which our guides could tell us nothing. In the

middle of the day, I rested as usual in some black tents, which on approaching we found already occupied with soldiers. The instant, however, of our arrival, some Turkish officers, who were in possession of the best place, insisted, with that civility which strangers always meet at their hands, on giving up their places to us. In the evening, about 7, we entered Bîreh-jik, having rode the 18 hours' march in rather less than 14.

Bîr, which is not known to the Turks by that name, but is called by them Bîreh-jik, is built on the side of a chalky hill, descending very steeply to the Euphrates. The town is quite hid till you come close upon it. The water appeared to me very good. There is a fine stream at the top of the hill which supplies the town with water. The water of the Euphrates is muddy and bad, though not so bad as that of the Tigris. On arriving we went straight up to the house of the Mutesellim, or governor, who received us most hospitably; nor would he suffer us to leave his house, but provided us an excellent supper, of which he did us the honour of partaking, after which I retired to sleep on a balcony over the Euphrates.

24th.—I had some difficulty in procuring horses to pursue my journey, but at last my dragoman succeeded in finding a muleteer of Aleppo on his return to that city; and at 3 I crossed the Euphrates in one of those boats so admirably described by Maundrell, and which have in no respect improved since his time. On reaching the other side I was struck by the peculiar appearance of the town, which, being entirely built of chalk, would not be distinguishable from the rock on which it stands did not the deep green of the cypress, and other trees which grow among the houses, relieve the eye. I here first saw the cypress since leaving Trebisonde, the climate of Armenia being much too severe for that beautiful tree.

I rode for 3 hours at a most tedious mule-pace, and slept at a village called Elifulú. The villagers were all encamped close by, not in the black tents of the wandering tribes which I had left behind me, but under white canvass. Just before entering this village I crossed a small rivulet, which must be the Touzad of Maundrell. It was here called Kherzîn (the Kârzîn of Rousseau's map). On inquiring whether it had any other name, I was told it was called by the Arabs Mōi.* Now, as this is merely the Arabic name for water, this must have been one of those random answers which so frequently perplex Eastern travellers. I do not ever remember to have asked a question without being answered, rightly or wrongly; nor will any Oriental willingly confess his in-

* Mōi is vulgar Arabic for water.—F. S.

ability to give a correct answer. The banks of the Euphrates here are steep and white, like the cliffs of Dover.

25th.—I had determined to follow Maundrell's route—that is, the route which he took from Aleppo to Bireh-jik, by Yerábolus and Bambuch. In 3 hours I arrived at Yerábolus, before the heat had commenced to be oppressive. The mound mentioned by Maundrell is there just as described by him: it is covered with stones and extensive ruins, but the figures mentioned by him exist no longer. Here the banks of the river are no longer so steep or white. I remained all day till the cool of the evening, and then rode on to the river Sájúr, the present boundary of the Sultán's dominions. I had this evening overtaken a large encampment on the move. They were migrating into the dominions of the Páshá to avoid the severity of the Turkish conscription.

“Incidit in Scyllam qui vult vitare Charybdim.”

It is a singular fact that a counter emigration is at this moment going on from Syria. I understand that both Ibráhím and Háfiz Páshá hold out inducements, such as a year's immunity from taxes and service. The Sájúr has been by some supposed to be the *Xálos* of Xenophon, which Rennell believes to have been the Kuweik, or river of Aleppo; but neither one nor the other can answer his description, ὄντα τὸ εὖρος πλέθρου,* if the plethrum be a measure of a hundred feet. This river (the Sájúr) is certainly not more than twenty feet wide, where we crossed it (just above the village of Sájúr). The other part of his description, πλήρη δ' ἰχθύων μεγάλων, it answers better. On asking the question whether it was full of fish, the answer was, “*Chók, chók,*” plenty, plenty—a fact afterwards apparent to my own senses.

26th.—After 3 hours' riding we reached Bambuch† by sunrise. The ruins here are more extensive than at Yerábolus. I saw many fragments of columns. The old walls are, as Maundrell says, clearly traceable, and in part standing. These are said to be the ruins of Hierapolis. I cannot help thinking that, unless there be clear evidence to the contrary, we ought—admitting, as is certain, that Hierapolis was in this neighbourhood—rather place it at Yerábolus, the two names, Hierapolis and Yerábolus, being nearly identical. It is, however, possible that the names of two ruined cities, so near each other, may have become confounded. I searched in vain for any coins among the necklaces of the children and the head-dresses of the women, who allowed me freely to examine them, but the only coins there were Turkish piastres. The villagers, who are a poor ignorant race, said that

* B. i. chap. iv. sec. x. of the Anabasis.

† Properly Manbej, a corruption of Bambycé.—F. S.

they did occasionally find old money, but having no use for it threw it away, which, if these were copper coins, they probably would do. On leaving Bambuch our guides lost their way; and I discovered by my compass that, instead of going W.S.W. to Aleppo, they were going to the northward. I had the utmost difficulty in persuading them to take the right course. I soon found that these Aleppine muleteers were of a very different character from the Turks beyond the frontier. They were insolent and quarrelsome, and utterly disregarded our Tátár, who had thus far been paramount.

I had long wondered how so faithful a traveller as Maundrell could have given so bad an account of the Turkish character: but he had only known it in Aleppo, where the honesty, truth, and fidelity, which, as far as my slight observation has extended, have ever seemed to me the characteristics of the Turkish character, are alloyed by the fraud and treachery which form so prominent a feature in that of the Arab.

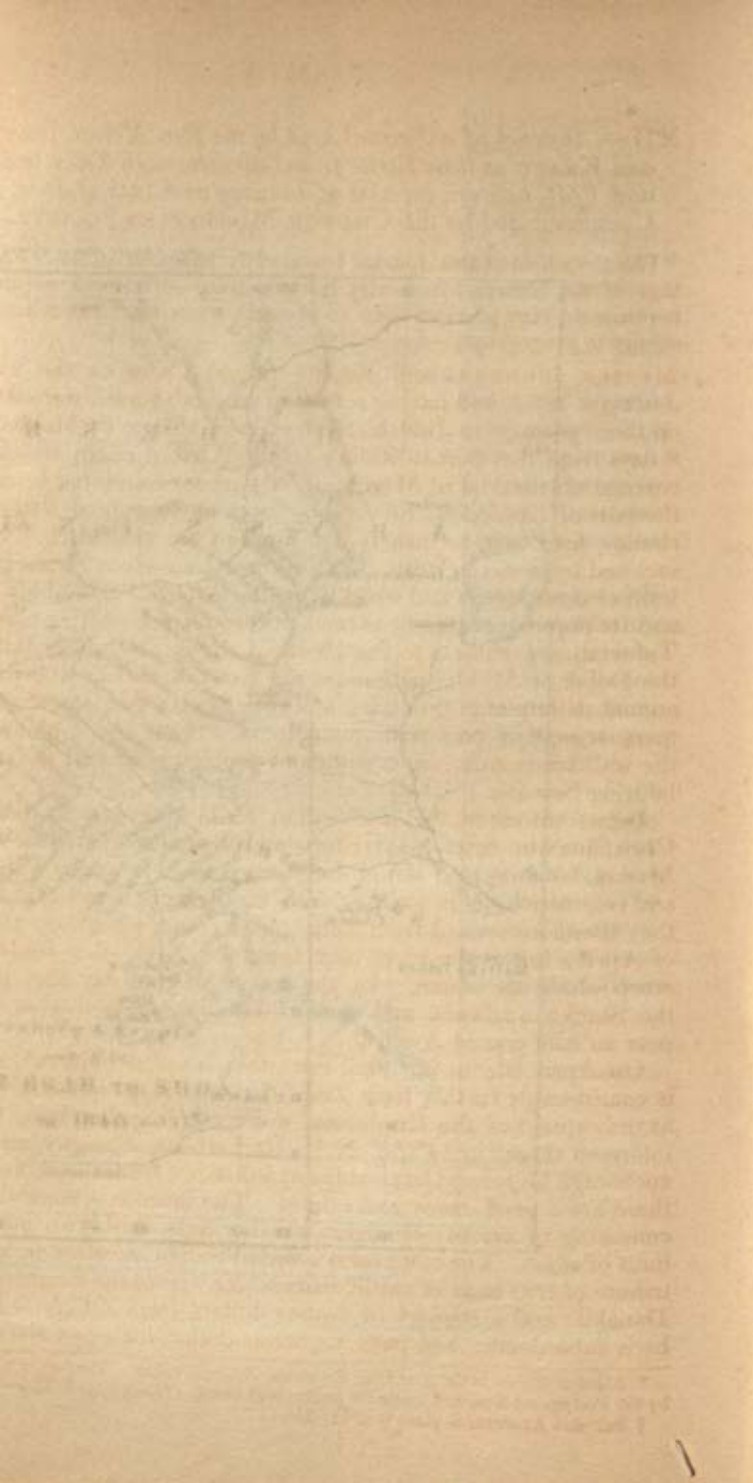
27th, 28th.—We slept last night in a large encampment, which had just migrated into the Páshá's dominions; and, after wandering about the plain all the morning to find the road to Aleppo, which, with the assistance of my map and compass, we at last did—for our muleteers were quite bewildered—arrived towards evening at a wretched village called Delsús, 7 hours from Aleppo, where we remained that night.

On the following day, our mules being quite tired, we did not arrive at Aleppo till after 9 hours' ride. We met no obstruction of any kind on entering the gates. The guards allowed our baggage to pass without a question; and as we rode through the bazaars I did not see a scowl on the face of any inhabitant. We had to pass completely through the town to reach the house of Mr. Werry, the consul, who was absent at Damascus; but from his son, who was acting in his stead, I received the greatest kindness and hospitality.

Meissner's Isenberg & Krapf's route is coloured Red.



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XII.—*Abstract of a Journal kept by the Rev. Messrs. ISENBERG and KRAFF, on their Route from Caïro, through Zeïla' to Shwá* and Ifát, between the 21st of January and 12th of June, 1839. Communicated by the CHURCH MISSIONARY SOCIETY.*

[As the whole of this Journal has already appeared in the "Proceedings of the Church Missionary Society, 1839-40," it was not thought requisite to reprint more than an abstract of such parts as relate principally to geography.]—Ed.

MESSRS. ISENBERG and KRAFF quitted Caïro on the 21st of January, 1839, and having set sail in an Arab vessel, were 21 days on their passage to Jiddah, 14 days from thence to Mokhá, and 8 days from that port to Zeïla', on the African coast, which they reached on the 31st of March. That harbour somewhat resembles the port of Konfodah, in Arabia, both having shoal waters, too shallow for boats, for nearly half a mile from the beach. Zeïla', inclosed by walls in ruins, has not more than eight or ten houses built of stone, reeds and wood being the materials commonly used; and its population cannot exceed 500 souls. Both this town and Tajurrah are subject to the Páshá of Egypt, by whose authority the Dólah of Mokhá nominates the Emir of Zeïla', who pays an annual tribute of 500 dollars, and commands a garrison of seventy men, armed in part with matchlocks. Some guns, planted on the wall landwards, are a sufficient protection against the neighbouring Somálís.

Being informed that the Sultán of Harrar puts to death all Christians who enter his territory, and ill-treats even Muselmáns, Messrs. Isenberg and Krapf determined to go by sea to Tajurrah, and commence their journey into the Interior from that Port; they therefore set sail from Zeïla', in a country-boat, on the 3rd of April; but as the wind blew from the N.E., they could only creep along the shore. In the course of that day they passed the Sheikh's Islands, and that of Hagilah, anchoring at night near an islet named Assubah.

On April 4th, at 2h. 30m. P.M., they reached Tajurrah, which is considerably further from Zeïla' than our maps make it, being, as the captain of the Euphrasia, a French brig then lying there, informed them, in $11^{\circ} 58' N.$ † Its harbour is roomy, and has anchorage for several large ships at a distance from the shore; but there are a good many rocks in it. The town is a mere village, consisting of seventy or eighty wooden huts, with two mosques built of stone. The chief, who is styled Sultán, receives an annual tribute of 200 head of cattle, camels, &c., from the neighbouring Danákil, and a stipend of twenty dollars from Zeïla', to which he is subordinate, and pays a quarter-dollar for every slave im-

* *Shwá* or *Shéwá* is the Amharic, *Shéwá* the Ethiopic name. The former was spelt by the Portuguese *Xoa*, and no doubt pronounced *Shwá*. (Ludolf, i. 3, 24.)—Ed.

† Salt and Arrowsmith place it in $11^{\circ} 21'$.

ported into his territory. His subjects trade with Hodeidah, Mokhá, and 'Aden, supplying those ports with wood, sheep, goats and butter, and receiving grain, clothes and Indian goods in return. They travel by land to Raheilah, to the N.W. of the Strait of Báb-el-mandeb, 3 or 4 days' journey from Tajurrah, and thence cross over to Mokhá in one day, if the wind is favourable. The country traversed is mountainous, and a river called Anateile* is crossed.

The Dankalí language, current at Tajurrah, is spoken in all the country, from Tigre to the land of the Somális, and from Musawwa' to I'fát westward. The language spoken near the latter port is merely a dialect of it. The various tribes in this part of Africa call themselves 'Affár; but the people of Shwá call them 'Adal, and the Arabs 'Adáyil,† but now commonly Danákil, the plural of Dankalí. The Mudaitus, occupying the tract between Ausá‡ and Cape Beilúl, are the most powerful of their tribes: their strength, however, was somewhat reduced a few years ago by the Debenik Wémas, the most industrious of these tribes. Their territory extends, in a south-westerly direction, from the Salt Lake (hereafter to be mentioned) as far as I'fát; and to the S. their neighbours are Somális, with whose tribe, called I'sa,§ they are on friendly terms; but these Somális are said to be very treacherous, and to act as guides to the Gállás in their incursions. Harrar lies to the W. of I'sa Somális. Its capital, bearing the same name, is said to have ten gates, large houses, and plenty of water. Its soldiers are armed, at least in part, with muskets; but caravans seldom pass that way now on account of the Sultán's rapacity and violence.

A Mohammedan trader, of Tigre, whom Messrs. Isenberg and Krapf met at Tajurrah, on his way from Berberah, gave them the following information, obtained from slaves, respecting Enáryá, Guráge, and Sidáma, countries in which there are many Christians, and in the last of which the natives are a superior race, and of a lighter hue than even the Gállás; but of late the intercourse between Sidáma and Góndar has been interrupted by Abbá Gibbi, sovereign of Enáryá. The slave-trade is actively carried on, and seems to be much promoted by the King of Shwá. The missionaries' guide appeared to be very apprehensive lest they

* "Perhaps the Anazo of the map," say the journalists. "But no such river," they add, "is known to the people of Tajurrah." That river is absorbed by the sands, and therefore does not reach the sea. The Hanázó (Ludolf, i. 8, 48), called Yásó in the lower part of its course, is the river thus lost. It possibly may reach the shore in some seasons.—ED.

† 'Adáyil is the plural of 'Adel or 'Adál. Dankalí, pronounced Dangalí, is the adjective of Donkolah, commonly spelt by us *Dongola*; but the language of that place has no resemblance to that of this tribe, whose speech is a dialect of Hadramí and Bishárí, as appears on comparing Seetzen and Salt's vocabularies.—Vater's Proben., S. 276.—ED.

‡ Houssa of Salt's map, and probably the Háwasá of Seetzen.—Vater's Proben., S. 282.—ED.

§ I'sa, i. e. Jesus?—ED.

should persuade the king to discourage this trade, which is very lucrative to the people of Tajurrah.

On the 26th of April they left Tajurrah, where they had been detained 20 days, partly by their guide's illness, and partly by exorbitant demands for the hire of their camels. They at last agreed to pay 17 dollars for each camel, 25 dollars, the price of a female slave, having been demanded; and fifty dollars to Moḥammed 'Alí, their guide, who had modestly asked 300. To his friend and assistant, the Arab 'Alí, they gave 15 dollars. The distance was calculated at 140 hours (about 330 miles). They had four camels for their baggage, and a mule for their own use. The whole journey, which they hoped to perform in 14 or 15 days, took up 36, and was very fatiguing. As the Danákil are migratory, there are very few villages between Tajurrah and Shwá, or rather I'fát; for by that name only is the King of Shwá's territory known at Tajurrah; * but there are above 50 resting-places, where the caravans usually halt. Their first journey carried them to Anbábo, on the shore of the bay (Ghubbat-el Kharáb),† about 4 miles W.S.W. from Tajurrah. The sea here runs up a good way inland, and forms a natural boundary between the Danákil and the Somáyil or Somális.†

On the 27th they passed through Dullul and Suktá to Sagallo, about 9 miles from Anbábo. These are merely watering-places, in a stony, sandy, uninhabited tract, overgrown with dwarf acacias, abounding in birds, but little infested by beasts of prey.

Sunday, 28th April.—Having been detained by the want of a strayed camel, they could not proceed till the afternoon: their road lay through a very sandy and stony tract, overgrown with dwarf acacias and frequented by a diminutive sort of gazelle, called in Arabic Bení Isráyil, and by hares, the only kind of game found there. This country is by no means deficient in water: at Tajurrah there is a walled cistern: on their road to this place there are spots where the traveller has but to dig a hole in the ground and he finds water. Its quality of course depends on the nature of the soil; and it has a reddish colour and unpleasantly bitter taste, which is made still worse by a certain herb which is put into their ill-tanned skins. The Danákil of this tract have many peculiarities: they are of the same race as the Shohos, and differ from them but little either in their language or features: but they are more civilised in their demeanour, and perhaps more intelligent. When they salute each other or converse together, the person addressed usually repeats every sentence spoken to him, or at least the last word, which is generally abbreviated, and

* I'fát and Shwá are adjoining provinces, subject to the same sovereign. In Tigré and Amhárá the latter, among the Danákil the former name only is used, as the missionaries learned at Tajurrah.—Ed.

† Desolate Bay.—Ed.

sometimes the last syllable only is repeated, or attention is shown by a hem in answer to every sentence. They are besotted Mohammedans, and in general very ignorant. Even the women while grinding, usually chant the words of their creed, "Lá Iláh illá-Iláh," &c., or verses of a religious cast. Their mills are much like those used on board of Arab vessels. The women do not live much more apart from the men than in Abyssinia, nor, as it is said, is their conduct much more correct.

Monday, 29th.—They left Sagallo at midnight, and for half an hour travelled along the sea coast in a direction due W., then turning to the N.W. began to ascend an eminence, and passing the defile called Ankyeféro, after a further ascent, reached the station of Der Kelle, and at length a table-land called Wárdelibán, which afforded an extensive view over the bay and the Dankálí country inland. They then travelled westward till they arrived at a spot where a few low acacias were growing, at 7h. 45m. P.M., and alighted there to pass the night. On estimating their rate of travelling during the 7½ hours, including their halts, they calculated the whole distance at a 4 hours' journey. During their ascent, they breathed a cool air, but on reaching the table-land, although the sun had only been up a short time, the heat grew very oppressive, having been increased by a S.E. wind. The plain was covered with volcanic stones.

Tuesday, 30th.—This morning they started at 3 o'clock, and descended in a south-western and southern direction through a narrow ravine, called Raízán, which it was very laborious for the camels to pass. This brought them to the western end of the bay of Tajurrah, which, after forcing its way in a narrow channel through the mountains, here terminates in a second bay. From Wárdelibán to this point, they had travelled for the distance of about 1½ hour; which makes the distance from the point where they left the sea-shore to Wárdelibán 5 hours; so that making allowance for the windings in the road, the distance in a direct line from the spot where they left the shore to the end of the bay, is probably about 3 hours. From the end of the pass they ascended again and came to another table-land, where ashes, lava and calcined stones still more evidently show the volcanic character of the country. After proceeding for another hour in a western direction, they came in sight of the salt lake Asal, in a valley in front of them; and at 8 o'clock encamped at the caravanserai of Daferri, on the declivity of a hill. In consequence of the excessive heat and want of water, their caravan started at 3 o'clock in the afternoon, and began to move in a south-westerly direction round the lake; but owing to the ruggedness of the ground, they were obliged to follow a very zigzag and irregular course. After crossing the valley of Marmoriso, where the caravans sometimes halt, they came to an eminence called Muyà,

whence they descended a deep declivity, and reached the valley bearing the same name, at 7 o'clock.

Wednesday, 1st May.—From Muyá they set off at $\frac{1}{2}$ past 1 A.M., and first reached a rather elevated plain, named Halak-sitán (Halak-sheítán ?).^{*} On account of the ruggedness of the ground, full of chasms and gulfs, the vestiges of volcanic agency, they sought to get round the lake Asal towards the S., in a semi-circle. To effect this they had to round some mountains S. of the lake, and arrived at a resting-place at its southern extremity; but as there was no water, the caravan thought it better not to stop. They next descended to the lake, the shores of which are covered with a thick salt crust, having the appearance of ice. To this place caravans resort for salt to carry it to Habesh, of which trade the Danákil make a monopoly, claiming the right to take salt from hence as their exclusive privilege. The lake is nearly oval, its length from N. to S. about 2 hours, and its greatest breadth from E. to W. perhaps 1 hour. It is about 2 hours distant in a direct line from the western end of the bay of Tajurrah. After leaving the lake the caravan entered a valley towards the W., which ran between moderately high mountains, first westward, then S.W., and at 10 o'clock they alighted at a halting-place called Gwagate, where there is water.

Thursday, 2nd.—On this morning they did not set off till sunrise, at $\frac{1}{2}$ past 5. Their road ran first W., then S. and S.W., through the valley of Kallu, which by its abundance of water and verdure, strongly brought to their recollection the valley of Sambar, but its mountains are higher and more thickly wooded. Towards $\frac{1}{2}$ past 8 they arrived at their halting-place Alluli, after having travelled over a distance of 2 hours. This evening 'Alí, the Arab, informed them that the principal Danákil tribes between Tajurrah and Shwá are these: Debenik Wéma, Mudaítu, 'Adálí, Bukharto and Dinsarra; to the last of which the Vezír, and to the last but one, the Sultán of Tajurrah belongs. The Debenik Wéma and Mudaítu are the most numerous, and the latter is perhaps the most powerful of these tribes (Kábáyil). They extend from Musawwa' to A'usá, which is their headquarters. There a Naíb (Deputy) of the Sultán resides; and between that place and the valley of Kallu, the road from Tajurrah to Ankóbar passes through their country. They were then at peace with the rest of the Danákil, though ill-inclined towards the Debenik Wéma, who some years ago got the mastery over them by the assistance of 400 Bedwíns brought over from 'Aden. This did not put a stop to the trade in salt between Shwá and Tajurrah; for the traders from that place went right to the Lake Asal, got a stock of salt, returned to Tajurrah, and proceeded through the Somáí country on the confines of Harrar to Shwá.

^{*} Galaksifán in one copy.—Ed.

Friday, 3d.—At 3 o'clock A.M. they continued their course, first westward, then for a short time to the N.W., then again W. and S.W., through barren valleys, till they emerged into a vast plain called Anderhadideba, which separates two ridges of mountains. The soil for the first $\frac{1}{2}$ hour's march over this plain appeared to be good, but produced nothing, the ground being broken up; afterwards, however, it was fertile, overgrown with shrubs, especially juniper. Towards 7 A.M. they came to an open spot called Gagade, where they rested for the night. Near them was a Mudaitu's tent, which was very low, and hedged round with brambles, according to the custom of the country.

Saturday, 4th.—They left Gagade at $\frac{1}{2}$ -past 1 A.M. A part of their caravan had already separated from them, in order to go to A'usá, and the remainder travelled very slowly on account of the weakness of their camels: their servants and one of the missionaries always went on foot; the former because the camels could no longer carry them, the latter because he had no mule. Their direction was westwards till they reached the resting-place of Karautu, where the road to A'usá branches off towards the W. From Karautu their course lay southwards, between mountains showing signs of volcanic action, with scarcely any vegetation. In the valleys only were grass and brushwood seen, and even here the ground was covered with ashes. They soon afterwards entered a long glen, where they saw many date-trees, which seem to be quite neglected. The Bedwíns cut off their tops, in order to collect the juice which flows from them, and is said to be intoxicating. At 8 P.M. they arrived at Dalaláí, a Dankalí settlement, where they rested, not having made in the last $6\frac{1}{2}$ hours more than 3 hours' way. The Danákil, especially their women, when travelling, employ themselves chiefly in plaiting mats and baskets of palm-leaves, to hold salt and grain. Their women, who seem to be industrious, are very slovenly in their dress, and frequently wear nothing but a strip of blue or party-coloured cloth bound round their loins, and reaching down to their knees; they sometimes, also, wear a fancifully wrought belt or girdle. Notwithstanding this, they are vain and fond of wearing bracelets, anklets, ear and nose-rings, coral necklaces, and other finery.

Sunday, 5th.—They started at 3 o'clock A.M., and moved in a S.W. direction through the vale of Kurri to Saggadere, and thence to Little Marha, which they reached at 7 A.M., having passed over a distance of $2\frac{1}{2}$ hours in $3\frac{1}{2}$. Their two servants were suffering from illness and fatigue because they could not ride. At 3h. 45m. they quitted Little Marha, and after moving along the valley almost westwards, ascended a very stony hill about 300 feet high, and then took a more southerly direction to a halting-place on the table-land, which they reached at 6h. 45m. P.M., having travelled over a distance of about $1\frac{1}{2}$ hour (5 miles) in 3 hours. In

the evening a hot wind blew, and the ground beneath them, as they lay stretched upon it, glowed almost like an oven.

Monday, 6th.—They set off at $\frac{1}{2}$ -past 3 A.M., and marched, stumbling over the stony table-land, till they descended, and passed through a ravine near the halting-place of Galamo, where they found a few Bedwín huts. Their general route was southerly, and having crossed a hill they came into another valley, where they would have halted, had they not been encouraged to pursue their journey by a cloudy sky, which sheltered them from the sun. From Adaïto they passed over a grassy plain in which there were deer and antelopes. After this the road soon led again over a hill commanding an extensive prospect. Further on they entered the vale of Ramudeli, where they encamped. They reached it at $\frac{1}{2}$ -past 8 A.M., having made scarcely 3 hours' way in 5 hours' march.

Tuesday, 7th.—At $\frac{1}{2}$ -past 3 A.M. they left Ramudeli; at 5 o'clock passed by Abú Yúsuf, and at about $\frac{1}{2}$ -past 8 A.M. reached Góbád. At 3 P.M. they left that place, passed through Sarkal and by a spot where there is a spring, and arrived at Arabdera at about 8 in the evening. The distance between Ramudeli and Góbád may be about 3 hours, and it is nearly the same between Góbád and Arabdera.

Wednesday, 8th.—They left Arabdera at 3 A.M. It is situated on a vast elevated plain, almost entirely covered with volcanic stones. Just before sunrise, they came to a low but extensive plain, where they saw some wild asses grazing, which took to their heels on their approach. At 10 A.M. they reached their resting-place, Daunileka, where their camel-drivers dressed a wild ass which they had killed. In these 7 hours they only made about 4 hours' way. There were this day some idle reports of a projected attack by a hostile tribe called Galeila, formerly repressed by the more powerful Wéma.

Thursday, 9th.—They started at sunrise $\frac{1}{4}$ before 6, and after a short march on the plain westwards, ascended a pretty high eminence called Mari, southwards, and at $\frac{1}{2}$ -past 10 A.M. reached their encamping-place on the table-land. The air grew more and more cool and refreshing as they ascended, but they felt rather fatigued when they reached the plain.

At 3h. 20m. P.M. they set out from their halting-place Mount Mari, and descended a low terrace, then marched on a wide undulating but elevated plain, over loose stones, without any vestige of a path, their guides being at a great distance in front, till after sunset they reached a declivity, the descent of which was not a little dangerous. Several times the camels could hardly move forward, terrified by the dismal abyss on the right, while the darkness of the night rendered the path under their feet almost undiscernible. At length they reached a projection at the foot of the mountain on

its western side, and there halted on a stony spot, where the Bedwins frequently confine their herds between walls of loose stones, to guard them from beasts of prey; but they had neither fuel to light a fire nor water to drink.

Friday, 10th.—They started at $\frac{1}{4}$ before 5 A.M., descended the remaining declivity, and came to Ahuli, where there are four or five hot springs, probably sulphureous; there they took in water, and after a halt of about an hour, continued their course through a large plain, extending S.E. and N.W.: their route lay S.W. across the plain. They afterwards crossed a low eminence called Lukki, which is nearly flat on the top, and covered with volcanic stones, as are most mountains passed in this journey. After $\frac{1}{2}$ -past 9 A.M. they came to a tree, beneath which they rested. From this spot there is an extensive prospect towards S.W. and W.; the whole tract is nearly level, with the exception of some low hills in the neighbourhood, and two or three higher ones to the W. at a distance, which are the mountains of Argobba and perhaps of Shwá. At 3 P.M. they left Lukki, and having ascended in a south-western direction to a grassy plain, marched till nearly 7 o'clock P.M., when they rested on a level spot in the plain of Killele.

Saturday, 11th.—They started at 1 in the morning, in order to make a long journey this day; but had not proceeded far, when they sunk into the mud, rain having fallen the day before, and softened the clayey soil. However, on turning as far as practicable to the W., they soon reached a dry spot, and thence took a more northern course till they met with a new difficulty, and lay down to await day-break. At $\frac{1}{2}$ -past 7 A.M. they set out again, first northwards, then N.W., and afterwards W.; passed two large herds of fine cattle, found water of which they drank and filled their leathern bags, and after another hour's march, arrived at Barudega, where they rested under a tree till $\frac{1}{2}$ -past 3 P.M., when they left Barudega, and pursuing a S.W. course through the plain, drew near a low ridge of mountains stretching S.E. and N.W. Towards 8 P.M. they came to a place which had trees, brushwood, and water, where they halted to pass the night, and for the first time saw a hyæna. At about $\frac{1}{2}$ -past 5 P.M. they set off for Gáyel, the village of Mohammed 'Alí's uncle, which was only $\frac{1}{2}$ hour's distance from their halting-place. They were there informed that 'Adáyil is the Arabic plural of 'Adalí, the name of one of the Dankalí tribes. It is that to which the Sultán of Tajurrah belongs; and it generally encamps in the neighbourhood of Shwá; but the greater part is dispersed over the adjoining countries. It was formerly the most powerful of all, and gave its name to the whole territory it then occupied. The tribes apparently most powerful at present, are the Mudáitus and the Debenik Wéma. The former have their chief seat in A'usá, and are sometimes at war

with the Wéma and the rest of the Danákil. They seem to be more numerous and powerful than any other Dankalí tribe: they call themselves 'Affár, the word Dankalí being Arabic.

Tuesday, 14th.—They set off from Gáyel, and ascended an eminence about 2 hours distant in a S.W. direction, where they encamped near the watering-place of Alibakele, which supplies the herds of cattle belonging to the neighbouring Bedwíns.

Thursday, 16th.—At 3 P.M. they left Alibakele, where they had waited for the arrival of their guide's father, and ascending westwards, were in $\frac{1}{2}$ an hour overtaken by a shower. After stopping till it was nearly over, they made their way with difficulty through the mud, and towards 7 P.M. arrived at a spot called Adaïto, where they passed the night. In the evening they saw the mountains of Harrar to the S.W. covered with clouds; the city of Harrar being distant only $2\frac{1}{2}$ days journey. They were then near the Alla Gállás, who had expelled Sheikh 'Alí Jábí from Erer, and extended their ravages as far as that district.

Friday, 17th.—They started at about 7 A.M., and their course lay over a stony but grassy plain, where they saw many herds and singing-birds. At $\frac{1}{2}$ -past 8 A.M. they reached Hasnadera, their halting-place, the residence of Sheikh 'Alí, their guide Mohammed 'Alí's father.' The Wéma Danákil have 100 Somalí archers, originally prisoners taken in their wars with different Somalí tribes: though considered as incorporated with their masters, they still preserve their native language, and never intermarry with the Danákil, by whom they are employed, because that people is said to believe shooting with bows and arrows to be unlawful.

Saturday, 18th.—This morning at $\frac{1}{2}$ -past 6 they set off from Little Hasnadera, and continuing their course S.W. over the plain which rose gradually, reached Great Hasnadera at $\frac{1}{2}$ -past 10 A.M., where they halted, but quitted it in the evening at 10 minutes before 6 P.M., and moving westwards over very stony ground, reached Mullu at $\frac{1}{2}$ -past 8. This is nothing but a vast plain covered with stones, with a little verdure in patches, a few acacias, and hovels made of boughs here and there. As this was their guide's principal residence, they rested there till *Tuesday, 21st*, when they proceeded under the direction of Sheikh 'Alí, their guide's father, who thought it necessary to take an escort of his people, as he was apprehensive of the Mudaïtus, through whose southern, and the Gállás, through whose northern, boundaries they must pass.

They left Mullu about sunrise, and moving S.W. over a plain, arrived at $\frac{1}{2}$ -past 9 A.M. at a place called Wadardarer,* about $2\frac{1}{2}$ hours distant from Mullu. There they rested till about $\frac{1}{2}$ -past

* Wád-ard-Erer; the River of the Land of Erer?—Ed.

3 P.M., when they proceeded S.W., till 8 P.M., because Sheikh 'Alí said they could not reach the nearest water at Kudáiti that night. But on the following morning, *Wednesday, 22d*, they arrived there half an hour after they started, and took in a supply for themselves and their beasts. Proceeding onwards they soon reached the village of Kudáiti, and alighted after they had passed it. In front of them to the N.W. were the Baadu and Ayalu Mountains, the latter being of a considerable height. To the S.W. was the Jebel Ahmar,* or the Mountains of the Gállás. Between them and that mountain was an undulating and nearly level country said to extend from the banks of the Hawásh as far as Berberah.

Thursday, 23rd.—They started about $\frac{1}{2}$ -past 5 A.M., and descended gradually in a south-western direction through the valley till $\frac{1}{2}$ -past 9, then rested under a large acacia near Metta, by the dry bed of a small brook, on the banks of which were many of those trees. The air was very hazy, and they saw many whirling columns of dust like smoke from manufactories. They quitted their halting-place at $\frac{1}{2}$ -past 3 P.M., and marching almost due W. over the plain, passed by the village of Metta. After 7 P.M. reached that of Kummi, and about an hour later encamped near a deserted and ruined village of Bedwíns, where there was no water, of which they were in want.

Friday, 24th.—They set off at $\frac{1}{2}$ -past 5 A.M., and pursuing their course over the same plain W.S.W., saw at a little distance to the left Mount Afraba, which is joined westwards by the small mountain of Fresiz, and to the N.W. of it by mount Asaboti, all inhabited by I'sas; to their right the high land of Shwá and I'fát was visible. The plain on which they travelled terminated in a valley overgrown with grass and trees; there they passed a village inhabited by Debeniks, and gained an eminence. At about $\frac{1}{2}$ -past 10 P.M. they reached the watering-place Gamnisa, whence the whole district takes its name, and there they found a caravan which left Tajurrah on the day of their arrival there, and had only reached this place the evening before.

Saturday, 25th.—They started this morning at 6 A.M., and moved nearly due W. over a fine plain full of grass and trees. At 9 they halted near the village of Little Mullu, surrounded by very luxuriant and gigantic grass, overtopping the head of a man on horseback. On this day they had a little elephant hunting. The country hereabouts swarms with wild beasts; and the hide of a zebra was sold to them for five needles and a few grains of pepper.

On *Sunday, 26th*, at 3 P.M., they left Little Mullu, and crossing a large plain, first covered with high grass, and afterwards with scattered bushes, where they occasionally saw an elephant;

* Red Mountain.—Ed.

travelled till $\frac{1}{2}$ past 8 P.M., and rested for the night at Berdude, still in the same extensive plain. While they were there, some chiefs of another tribe of Danákil, the Taki'l, came to beg for tobacco: this alarmed their guide, and made him hurry them on. The other Danákil tribes in that part of Abyssinia are the Debenis, west of the Wémas, who extend very far into the district of Gannisa, on the borders of which are the Masháikh and Gasoba, among whom the Taki'ls are dispersed.

Monday, 27th.—They left Berdude at $\frac{1}{2}$ past 5 A.M., and crossed the other part of the plain called Galakdiggi;* saw much game, especially large deer, also two ostriches; and a little before 9 A.M. arrived at a watering-place called Ganni, where they rested.

Tuesday, 28th.—Having started at 10m. past 2 in the morning and marched westward over a barren part of the plain, they arrived at Great Galakdiggi; and then they crossed an eminence soon after sunrise, from whence the mountains of Shwá were clearly visible. From it they descended into the valley of Little Galakdiggi, and having crossed one of the hills which skirt the eastern side of the valley of the Hawásh, they descended into the deep and wide valley of that river, which they had already seen from the eminence above, whence some parts of the course of the river could be traced. At the foot of the mountain the road lay through a forest of acacias, from which the people of the caravan collected a good deal of gum-arabic. They then encamped on a spot called Debille, from the trees near which, on one side of the village, there hung nests of small birds, sometimes as many as forty or fifty on one tree.

Wednesday, 29th.—At $\frac{1}{4}$ past 4 A.M. they started, and pursuing a south-western course, reached the Hawásh at $\frac{1}{4}$ past 6 A.M., by a road winding through a fine forest abounding with plants and animals. The fresh tracks of elephants were often observed; the braying of a zebra, and the snorting of hippopotami were also heard near the Hawásh, but neither were seen. As they crossed the river, crowds of baboons were noticed on some of the trees, an animal not before seen in Habesh. This was near Melkukuyu; and although it was in the dry season, the water was from 2 to 4 feet deep. The breadth of the channel is about 60 feet, and the height of its banks, as far as they could judge, averaged from 15 to 20 feet. Both sides are covered with beautiful forests, the breadth of which, however, is not hereabouts considerable. The river runs N. and N.E. They could not learn whereabouts its source is. The right bank is inhabited by the Allas, Ittus, and Mudaitus, and the left by the Danákil, who border on Shwá eastwards. From hence where it has the Argobbas on one side and the Mudaitus on the other, it flows

* Halakdiggi in "Proceedings," p. 135. It is Salt's Halugdog.—Ed.

as far as A'usá, and there in an extensive plain forms a large lake, the water of which is said to be putrid, emitting an offensive smell, and being disagreeable to the taste: on digging near the lake, however, good water is said to be found. The Ittus, on the eastern, not the western bank of the Hawásh, as is marked erroneously in the maps, lay to the S. of the Missionaries' route, and further S. the Abarras join them, having the Allas and other Galla tribes still further southward. At noon they went to see a small lake W. of the Hawásh, which is about $\frac{1}{2}$ a mile long and $\frac{1}{4}$ a mile broad. In it there were at least 100 hippopotami sporting about. They fired a few shots at them, after each of which they suddenly plunged into the water, and on coming up again blew a stream out of their nostrils like whales, and snorted like horses. There are also many crocodiles in this lake; one 9 feet long which lay in the water near the bank, was struck by their people: "a naturalist," they observe, "would have abundant employment in that neighbourhood."

Thursday, 30th.—At $\frac{1}{4}$ past 4 A.M. they set off from Melkukuyu, and marched over a hilly track near a small lake, the water of which has a disagreeable taste and a sulphurous smell, and is believed by the natives to be peculiarly detergent. The tract of country through which they had lately passed is called Dofar. After passing through several woods abounding with game and enlivened by the notes of a great variety of birds, they reached a larger lake named Le-adu,* at about 9 A.M., in which the hippopotamus is said to abound, but not one was then visible. Thence proceeding westwards they alighted at about 11 A.M. at Assaboti, in a large sandy plain full of acacias. Setting out again at $\frac{1}{2}$ past 3 P.M., they left the caravan behind, and encamped in the evening at Atkonsi, having by the way seen several baezas, a fine animal of the size of a cow, but shaped like a deer, with upright, not branching, horns: their flesh is exquisite. This tract is like a garden of cactuses.

Friday, 31st.—They started at $\frac{1}{4}$ past 4 A.M., and after sunrise entered a fine valley called Kokai, with lofty trees, excellent water, abundance of cattle, and a great variety of birds. After crossing several hills, the outskirts of the Abyssinian high lands, which extend from the S. far northwards, at about 8 A.M. they reached Dinomali, the frontier town of Shwá, where soon after their arrival they were visited by Soléimán Músa, collector of the customs, and Abbagaz Mohammed, governor of the confines, who came to inspect their persons and baggage. They were accompanied by Debtera Tekla Tsion, secretary for the salt trade. During this visit, Háji Adam, whom the Rev. Mr. Krapf had seen the year before at Mokhá as a royal messenger, came in and said that he was on his way to Mokhá, and had a letter and a female

* That is, "Far-distant Water" (in Dankali).

slave for them : as they could not conscientiously accept the slave, she was sent back to Ankóbar. The letter expressed the king's wish for medicine, a gun, masons, &c., and if possible, the company of the Rev. Mr. Isenberg, to whom the letter was addressed. An answer was immediately returned to the king, and quarters were assigned to the Missionaries in the village of Farri, till the King's pleasure as to their further progress should be known.

On receiving the king's permission to proceed, they passed through a few villages, crossed the rivers Hachani and Welka Yebdu, in their way to a village called Aliu Amba, in a district so named, situated on a steep rock, where they met the first Christian governor, Yaunatu, who received them gladly as Christians. On the following day they took other porters and asses from that place (travelling at the king's expense), and ascended the high mountains, on one of the summits of which, Ankóbar, the capital of the country, is situated. They crossed over a ridge of the mountains, which commands an extensive view ; on one side towards the vast plain they had lately crossed beyond the Hawásh, and westwards over Shwá to a great distance. They went round one side of the summit on which Ankóbar is placed, and passed through a part of the town : the houses are constructed chiefly of wood, with conical thatched roofs, and are generally surrounded by a garden. The upper part of the town is hedged in with long stakes interwoven with boughs as palisades ; and on the summit is the king's palace, built of stone and mortar, with a thatched roof. The situation of this town with its rich vegetation and cool vernal, or rather autumnal atmosphere, threw them almost into an ecstasy. The king had given orders that they should be soon presented to him, and as he was at Angollola, a day's journey distant from Ankóbar, they could not remain there. In their way onwards, they passed over stony roads along the side of some mountains, and crossed an elevated valley through which a crystal rivulet hurries along, and is to turn a mill begun by a Greek builder named Demetrius, by order of the king, but not then completed. They here seemed to breathe Alpine air, and drink Alpine water. They then ascended another high mountain, where they saw many Alpine plants, camomile and pennyroyal, densely covering the ground. The summit of this mountain was almost all covered with barley fields, nearly ripe for the harvest. They put up at a poor little village called Metakwi, in a straw hut or rather stable, in which large and small cattle lay mixed together with men, and where the smoke of the burning cane and cow-dung was so offensive, that nothing but the cold out of doors could reconcile them to remain within.

On the following morning, the 7th of June, they left Metakwi, and pursuing their road eastwards over undulating table-land, halted

at about one o'clock, P.M., in an elevated valley near Islám Amba, where the king's tent, of an oblong form and of black coarse woollen, was already pitched. He was expected to come that way, and to pass the night there in his journey from Angollola to Ankóbar, to keep the annual Tezkar (anniversary) of his father Wusäi Saged's death, which occurred in 1811. They had not been long encamped before they saw a train of horsemen coming down the mountain westwards, and in the midst of them, the king, over whose head a scarlet canopy was carried. He sent for them immediately after his arrival. They had prepared their presents, and with palpitating hearts entered his tent, where he sat on a small low sofa covered with silk, and received them kindly. Their names were already known to his attendants; and a messenger whom he had once sent with Kídán Maryam to meet them at Góndar, inquired after M. Blumhardt. They first delivered Col. Campbell's letter, which had been translated by M. Isenberg into Amharic while on board ship; he perused it attentively. They then delivered their presents, among which the beautiful copies of the Amharic New Testament and Psalms particularly struck him; he seemed to intimate, however, that he would have preferred Ethiopic to Amharic books. He observed that with regard to their principal object, which they had distinctly explained to him, he would have further conversation with them at a future time, as it was a matter which required great consideration: for the present he wished only to see and receive them, and to say that he was very glad that they had come to his country. He desired them in the mean while to go back to their tent, and rest there till the following day, when they might proceed to Angollola, where he would again send for them, immediately after his return from Ankóbar. They were much pleased with their reception. The king's servants were ordered to treat them as his guests and friends, and to provide them with everything necessary. One of his attendants was appointed to wait on them, who had strict orders to keep off all troublesome people who might interrupt or annoy them in any way.

Very early in the morning of the 11th of June the king set off with his suite for Ankóbar, and the missionaries proceeded to Angollola, which they reached at 2 P.M. Not long afterwards the king returned, and immediately appointed a house for their residence, and sent them a cow. In all these interviews with him it appeared that his great object was to obtain their aid in advancing the knowledge of arts and sciences in his dominions; but he did not betray any signs of displeasure when they reminded him that their business was of a spiritual and not of a secular character.

XIII.—*Extracts from a Journal, kept at Ankóbar, from 7th June to 2nd October, 1839.* By the Rev. J. L. KRAFF.

7th June, 1839.—HAVING met the king for the first time in a meadow called Tora Mesk, we were ordered to follow him before sunrise next day to Angollola, where he resides during several months of the year. Our road passed over a tract generally level, intersected, however, occasionally by hills and rivulets. The Bereza, the largest river we crossed, is a rapid torrent in the rainy season: it rises in the country of the Gállás, and runs in a north-eastern direction to the neighbourhood of Tegulet, the ancient capital city of Shwá, where it forms several cataracts from 60 to 70 feet in height. On our way we saw a great many villages in all directions, which gives the idea of a large population. In Tigre a traveller seldom sees a village. The real cause of the populousness and flourishing state of this kingdom is, beyond a doubt, its having been preserved from the civil wars which perpetually desolate the other parts of Abyssinia. We arrived at Angollola about three o'clock in the afternoon. Having waited a little while at the door, we were conducted to a pretty good house belonging to a chief whose name is Habta Michael. The king then gave orders that his people should provide us with everything we were in need of.

Sunday, 9th.—We were sent for by the king very early this morning. On his asking for medicine, we told him that our particular business is teaching and preaching the gospel, that we are not learned in physic, but that, if he wished it, we would give him such medicines as, according to our slight knowledge, we thought likely to do good. We also took this opportunity of begging him to place under our direction some children whom we might instruct in the doctrines of the Bible and in other branches of useful knowledge. He promised to grant this request, which we thought it right to make, that we might show, at the first entrance into his country, that we have the welfare of his subjects at heart.

10th.—We were again sent for very early this morning by the king: he repeated his request for medical assistance. As our conversation yesterday had turned on geographical subjects, we took a globe and maps with us to-day, in order to give him an idea of geography. He was pleased with all that we showed and explained to him, but at last said that he was too old to study such things. After we had returned to our lodgings, Bérú, his favourite servant, came to desire us not to give medicine to anybody else, or all the people would come and tease us very much.

12th.—This afternoon we formed an acquaintance with Marech, a powerful chief of the Abedchú Tribe of Gállás. As

we are desirous of forming a connexion with the Gállás, we were glad to know him. He also asked for medicine, which M. Isenberg promised to give him if he would observe the diet prescribed; but as he refused to do so, no medicine was given. The Abedchú Tribe is established near Angollola, from which it is separated by the river Chácha.

13th.—We saw the king this morning, sitting on his judgment-seat. It was placed on an elevated spot, and the persons who came for redress or on other business were standing round the entrance of the king's palace. There are four judges to hear the people's complaints, and decide upon them: if their decision does not please him, the king passes sentence himself. He thus sits in judgment, one or more days, every week. When this business was over, we were conducted to see the king's artificers: blacksmiths, weavers, and other artisans are gathered together in one large place, where each of them performs the work which he is set to do, and is obliged to show it when finished to the king, who orders him to do it better if he is not pleased with it.

17th.—Bérú, the king's servant, came this morning to ask, in the king's name, whether we know how to make sugar and brandy? We answered as before, and repeated our petition for children to instruct; adding, that when they came to us we would teach them all that we know. Bérú went away, but returned immediately for our kitchen utensils, which the king wished to see. He at the same time expressed a strong desire to be taught how to make some European dish, and begged us to write down some receipts for him. We answered that we could not meddle with such matters, and ordered our servant to satisfy the king in this respect; in consequence of which he was immediately sent for to dress a dinner for the king. The king is anxious to get from Europeans all that he sees and hears; only it is to be regretted that he endeavours to have all for himself, without reflecting upon the common good and welfare of his people. Experienced mechanics are well received by him, but they must not expect European wages; they will receive their daily maintenance, and that is all. I am sure that skilful artisans, who are real Christians, might be of great service to our Mission. How much the king looks after his own interest, the following examples will prove. No man of Shwá is allowed to brew the Abyssinian mead, which is called Tsaj,* except the king. A bridge over the river Bereza, mentioned above, was built by an Albanian named Johannes, formerly a Mohammedan but now a Christian, and resident in Shwá; but no one, except the king, is allowed to pass over it even in the rainy season. Four

* Made of honey, a plant called Tsádó, and water.

persons have been already drowned in the river this year. Heavy duties are levied by the king on all goods imported, the tenth of every article; so that commerce is severely checked. In a mill built by a Greek named Demetrius, nobody is allowed to grind his corn. And these are only a few instances out of many that might have been given. In these cases, the king only follows the practice of the other Abyssinian chiefs: but in other respects he acts more unjustifiably than his neighbours; as, for instance, he continually attacks the Gállás without any provocation, seizes their property, and sends his captives to be sold as slaves at Tajurrah. He does this every year after the rainy season is over, and has by such means enlarged his territories; and his conquests are said to extend over a space thirty times as large as Shwá itself.

18th.—On this day, which is the Festival of St. Michael, according to the Abyssinians, the king clothes his slaves, who amount to some hundreds in number. Many persons came to our house begging for clothes; we gave them bread, which they refused to accept; others begged for medicine.

19th.—Having heard that the king was about to leave Angollola, we again petitioned to have children sent to us for instruction. He sent word that he would send them from the city which he intends to build in the country of Abedchú Gállás. Békú, the chief of the Adáí tribe of Gállás, applied for medicine, being tormented, as he imagined, by an Evil Spirit. M. Isenberg bled him: he was better for a time, but soon relapsed to such a degree that his people were compelled to put him under confinement.

20th.—The king set out this morning in order to build his intended city. We took leave of him on the road. Observing us, he stopped for a moment, and said "How do you do?" Praised be God, for having made the king's heart favourable to us! Before he quitted Angollola he sent his servant several times to tell us that he considers us as relations, even as brethren; and that henceforth we should make him acquainted with all our wants, as he will supply them all. Knowing the Abyssinian mode of expression, we do not lay much stress upon this; however, we see his good feeling towards us. From time to time, he sent us a sheep or a cow or something else. As all the king's people are obliged to go with him, several youths, with whom I had begun to read St. Matthew's gospel, left me.

21st.—It rained to-day for the first time since we arrived in Shwá: strong eddies of dust had foreshown its approach. This has not, however, prevented the king from building his city, which he has named Zalaish. On commencing a new city he causes a long trench to be dug round the place

where he means to build, then raises a wall, builds several houses of wood, and appoints a governor, under whose command a number of soldiers are placed. By these means he hopes to secure his frontiers against the inroads of the Gállás. Thus has Angolola itself arisen: new settlers come, a church is built by the king, and in a short time, a large village springs up.

22nd.—This day is the Festival of Kidán Meherat.* Several of the learned Abyssinians say that God appeared to the Virgin Mary in Paradise, and made a covenant with her that she should redeem the world; others say that Christ made this covenant with his mother in the month of February, during a period of sixteen days.

24th.—I this morning demanded my mule of Aïto Melku, the Master of the Horse, to whom our mules were intrusted by the king's order. He refused to let me have it without a special order from his majesty, so that we are not masters of our own property; even the merest trifles depend upon the king's will; not a cup of wine can be given to a stranger without his permission. At present about 200 persons receive from him their daily allowance (called Dirgo).

26th.—We were asked this morning whether we believe that Adam remained seven years in the Garden of Eden? We replied that we know nothing about it, as the Scripture is silent on that head; and that we do not acknowledge the authority of the book called Zéná Fetrat,† from which they derive that opinion.

27th.—We had a great deal of rain.

Sunday, 30th.—This morning I went to the church, and was obliged to pull off my shoes at the door. Having entered, I was invited to take a seat beside the Alaka, and they gave me a long stick, such as the priests use and lean upon while in church. Their whole church-service consists in a terrible bawling, which they call singing. Their book of hymns, called "Degwa," was composed by an ancient Doctor of their church, named Fared, of Samiku. While singing, they skip and dance, and knock their sticks together, and also beat drums and cymbals. Their bawling is interrupted by reading a lesson from the Scriptures. In fact, the whole seems to be rather a farce than religious worship.

July 1st.—Very early this morning I heard a loud outcry near the house, and was told that it was made by some persons who wished to make a complaint to the king. They cried out, "Abiyet, Abiyet!" The members of the king's Council, who are called "Wanberoch," that is "stools," are bound to make all complaints

* The Covenant of Mercy.—Ed.

† Hist. of the Creation.—Ed.

known to him. They are four in number, and in general pass sentence themselves; but they must always lay their decision before the king, who, in most cases, relies upon them as his advisers and supporters. This cry, "Abiyet! Abiyet!" is connected by the Abyssinians with a strange story: they say that it will be uttered by the Devil at the Day of Judgment; upon which the Almighty will then ask what he wants, to which he will answer, "The angels have robbed me of a great many souls which belonged to me." The Lord will then ask him, "What are the names of those angels?" He will answer, "I know not:" to which the Lord will reply, "As thou dost not know the names of those who have robbed thee, I cannot help thee."

2nd.—In the forenoon a servant of Berkiye, the chief of Bulga, came to ask for medicine. His master is a gebi; that is, one of the king's favourites. Bulga is a considerable city on the southern frontier of Shwá, and the capital of Fatagár. It is one day's journey distant from Ankóbar.

5th.—The king sent for us to-day to provide him with medicines which will secure him from wounds or injuries in war. We told him that we did not know of any such medicines; that our kings gain the victory by trusting in God, keeping a good discipline in their armies, and choosing experienced, able generals. This gave rise to some remarks on the military exercises practised in our country. He was also much pleased with our account of the formation of our quarries. Then we gave him a short account of our steamers, carriages, and railroads. He expressed his astonishment at all these works of human art; and at last asked for magical charms against sickness. Mr. Isenberg replied that such arts are sinful, foolish, and entirely useless; that it is the duty of every sick man to put his trust in God, and take such medicines as God has given for the cure of our diseases.

6th.—A man named Akálú, from Tigre, called upon us this afternoon. He has lived for several years in Shwá, and is often sent by the king to Góndar and other places. I learned from him that, in a grove near Ankóbar, there are about forty persons, members of a sect called Tabibán,* one of whose rules is that husbands and wives should live in separate houses. I suppose they are Falásyán, and therefore Jews, like those in Amhárá. They are dreaded by the people in Shwá as much as by the inhabitants of Amhárá, being looked upon as sorcerers; and every worthless fellow is called Tabíb.

8th.—The villages around Angollola are as follow:—1, to the west, Cherkos; 2, Toffiyet; to the north, 3, Dalecha, to the

* Wise Men.—ED.

north-east; 4, Koni bíyet, where there were Gállás formerly, but they have lately been converted by the present king of Shwá; 5, Mutingenza.

11th.—The tribes of Gállás tributary to the king of Shwá, are,—1, Abedchú; 2, Adaï; 3, Zodda; 4, Abbo; 5, Lebán; 6, Chidda; 7, Afzála; 8, Galan; 9, Metta; 10, Maïcha. Becho and Yerrer, dwelling to the south, are not tributary, as I am informed by the son of Beku, governor of the tribe Adaï.

12th.—We made an excursion this afternoon to the river Chácha, about 4 miles distant from Angollola. We saw one of its cataracts about 70 feet in height. On the way, I saw for the first time the Ensete,* a handsome and useful plant, of which a figure is given in Mr. Bruce's Travels. The Abyssinians use it in baking bread, which is enwrapped in it, and gets a particular smell, which I do not like. The water of the Chácha runs in a deep dale between two mountains. The rivers Bereza and Chácha are said to go to the Nile: that river separates the Gállás from Shwá. Thus we were on the frontiers of the heathens. The access to them is easier from Shwá than from anywhere else. We know about forty tribes of them by name: a great number of them are tributary to Shwá. The Gállás are in a low state even of heathenism: they have no priests (like other heathens), who oppose themselves to the introduction of a new religion. They have a general notion of a Supreme Being, whom they call Wák; but no definite system of religion. On particular occasions they sacrifice a cow or sheep to Wák, but without the aid of priests. All the different tribes use the same language; which seems favourable to the success of a Mission among them. There is a village called Cherkos on the Chácha, where the Christians were killed by the chief, four years ago, and having fallen out with the king of Shwá, he excited the Gállás to rebel against him. At first he attempted to assassinate the king, but his son detected his father's wicked design, before he could put it in execution.

13th.—To-day is the Abyssinian festival called Seláse,† on account of which, the king returns to Ankóbar; we were therefore ordered to remove from Angollola. We left the place with mixed feelings; on one side we were praising God that he had made the heart of the king of this country incline towards us, on the other, we were dissatisfied with what we had done towards our holy design; but we hope our activity will increase at Ankóbar. We set out from Angollola about ten o'clock, but, being unable to reach Ankóbar, passed the night in a village called Metátit, on Mount Khakka, about 5 miles distant from Ankóbar. An old

* A species of Musa or Banana.—Ed.

† "The Third" Feast of the Nativity.—Ludolf, Comm., p. 423.—Ed.

man received us in his house, in which both man and beast lived together, in the midst of smoke that nearly suffocated us.

14th.—We arrived this morning safely at the gates of Ankóbar: when about to enter the town, we were stopped by the governor, the people telling us that we must wait till he had been informed of our arrival, and had given orders for our admission, as no foreigner can enter Ankóbar without his permission. A messenger, sent by him, came afterwards to show us our lodgings.

15th.—The king arrived this day, and we paid our respects to him on his way to his house.

16th.—The king sent his servant to ask us whether we knew how to coin dollars. We begged permission to appear in his presence, and when admitted, said, as we had done before, that we are messengers of the Gospel, who do not engage in any worldly business, and are therefore not acquainted with the art of coining money; but, if the king desired it, we would write to our friends in Europe, who would willingly render him every service in their power, provided he would not prevent us from preaching the Gospel in his dominions. Mr. Isenberg, at the same time, acquainted his Majesty with his determination to leave Shwá in the month of October, in order to return to Europe, where he would himself communicate the king's wishes to our friends. He approved all that we said. Having returned to our lodgings, the king's servant came to show us the way to another house, which had been formerly inhabited by the king's father. We were very glad of this change, having been much molested by the people of our first house. On entering our new lodgings, a Mohammedan, named Násir, belonging to a Gállá tribe called Dawe, called upon us. His father, named Abbíye, is the chief of his tribe. He told us that Bérú, the ruler of Argobba, had conquered all his father's territory. He therefore took refuge with the king of Shwá, who restored him to his former power, but made his territory tributary. This man gave me information about the Gállás established in the north of Shwá. The capital city of Bérú, ruler of Argobba, who is dependent upon Góndar, is Ainek, on the river Chaffa, called Bérkona by the people of Shwá; and which, coming from the west, joins the Hawásh, in the country of 'Adel. The river called Chaffa by the Gállás separates the northern Gállás from Shwá. There are the following tribes,—1, Dawe; 2, Wollo; 3, Wara; 4, Gafra; 5, Wochále; 6, Záko; 7, Botollo; 8, Chuladere; 9, Gille; 10, Asallo; 11, Asubo; 12, Lagagóra; 13, Gama; 14, Zagambo; 15, Kallóla; 16, Yechú; 17, Ittú; 18, Karayu; 19, Arrúzi; 20, Cherker. The last four tribes are to the east of Shwá. Násir had a Christian servant

with him, who wished to be instructed by us; his name is Gebra Giyúrgís, and he is about 14 years of age. His father is a debtera (a man of learning), son of Tekla Haïmanót, the Alaka of the church of St. George. My first conversation with this lad gave me a favourable impression. He is the only youth who seems to have a real desire of instruction; he has a good understanding, and is designed by his father for the priesthood; he will therefore be sent to Góndar to be ordained, when the Abúná has arrived.

22nd.—To-day is the festival of Máryám.* This evening a boy about nine years old came to our house and told us that his father and mother were dead. His father had left him only two ámule (*i. e.* pieces of salt), which were taken from him by the people of the house in which he dwelt, who then drove away. As the king has sent no children to us for instruction, we resolved to receive all who had a real desire for it.

Sunday, 28th.—I went to the church of St. George, and there presented a copy of the New Testament to the Alaka Wolda Hanna, who received it with thanks.

29th.—To-day was a great Tezkár (anniversary) in memory of the present king's father, who died twenty-seven years ago. The priests pray in the church; and, after finishing their ceremonies, eat and drink as much as they please. We saw the tomb of the late king: there are a great many figures representing the king's achievements; such as Gállás, whom the king himself killed in war; buffaloes, lions, and leopards, which he himself shot. The present king sent for a painter from Góndar to paint these pictures in the Abyssinian style.

30th.—The Táboót (ark used as an altar) was brought this morning, while many shots were fired, into the church of Tekla Haïmanót, which is the second church built at Ankóbar by the present king. Having yesterday received another boy into our house, some little offence was taken at it to-day. Zerta Wolda, to whose care the king commits strangers, having been informed of our reception of a second boy, repeatedly charged our servant to prevent persons from coming to us: we immediately informed the king of his proceedings, and had the pleasure of receiving his orders that nobody who asks for instruction should be hindered from coming to our house. Since that time, the number of our scholars has increased. I this day finished the physical part of geography with Gebra Giyórgís, who is much pleased with it.

August 1st.—Since I went to St. George's church several priests came to speak to us upon religious subjects. Most of

* Mary Magdalene.—Ludolf, *Comm.*, p. 421.

those who came to us belong to that church. The reason of this may be, that half a year ago the Alaka Melat was dismissed by the king, in consequence of the controversy about the second and third births of Christ. The people attached to that church admit only two births.

4th.—I this afternoon became acquainted with a man named Arnädis, whose business is to teach the art of singing to 100 boys. Hoping to get access to his scholars through him, I tried to gain his good will. He promised to send me his son, now about 17 years old, for instruction. Children are taught to sing in obedience to the Book of Jared. If a boy is not willing to learn, he is punished by his parents, who bind him hand and foot. This is a custom in Abyssinia.

5th.—One of the people in our house, this morning, gave us the following account of the king and his family. Sahela Selásé succeeded to the throne of Shwá when only twelve years old, and has now reigned twenty-seven years. The line of his predecessors is as follows:—1. Nagási; 2. Sebastíye; 3. Abíye, who took Ankóbar from the Gállás; 4. Amaha Iyesus (Jesus); 5. Asfa Wusen; 6. Wusen Saged; 7. Sahela Selásé, the present king. The king has ten daughters by different wives. By his first and favourite wife, named Bezabesh, he has a daughter and two sons, the elder of whom is twelve years old. The king's male offspring are kept in prison at Gancho, on the eastern frontier of Shwá, in the neighbourhood of 'Adel. As soon as the king is dead, his eldest son is brought out of prison, and introduced to his subjects by the Malafia Agafári, the first door-keeper, whose office it is to crown the king. The new king then imprisons all his brethren, being afraid of their raising commotions. This afternoon the king went to Makhala Wanz, a village about 5 miles from Ankóbar, in order to keep a fast there for sixteen days in commemoration of the Felsata (Assumption of the Virgin Mary).

6th.—The Fast of the Assumption begins to-day.* Since the king has recalled Zerta Wolda's order about persons who come to us, we have got more people whom we can instruct in the Word of God. In the afternoon I called upon Alaka Wolda, and inquired about their Ethiopic books. He gave me the titles of several, and said at last that the Christians flying from Grafi (a bigoted Mohammedan tyrant of 'Adel) retired beyond his country, and took with them their books and 100 tábóts (altars).

7th.—I this morning asked Akálu, whom I mentioned before, what the Abyssinians were allowed to eat during the fast. He

* The Feast of the 'Ergete Máryám falls on the 9th of August, according to the Abyssinian calendar given by Ludolf (Commen., p. 425). Felsata signifies "the Translation."—Ed.

answered that they were not allowed to eat anything except gomar, i.e. the stinging-nettle, and dry bread. The present fast is called Nahasé, i.e. August, that being the month in which it occurs. Next comes the Fast of Hodod (Lent), in the month of February and March, which lasts forty days. Afterwards comes the Fast of the Apostles in June (twenty-five to thirty days), then the Fast of Ninive (three days). In the month of December is the Tsóma Ledat (Fast of the Nativity*), and every Wednesday and Friday are fast-days. The Fast of Felsata Hododiye, that of the Apostles, and the weekly fasts, are indispensable; the observation of the other fasts is voluntary. Thus they pass a great part of the year in fasting. If a person does not fast he is excommunicated and, unless he repent, is not allowed to have Christian burial. A man named Habtu visited us this afternoon. As we had heard that he belonged to the sect of the Tabibán, I asked him about them. He said that his relations are followers of that sect, whose forefathers came hither from Amhárá about 1000 years ago, and inhabited caves in the neighbourhood of Ankóbar. They have three other monasteries in Shwá, one at Yelemá, the two others at Tallása and Deiffi. He said the people of Shwá give them nicknames, but they love God. They have the Bible in another language, and are in possession of other books. I shall go some day to visit this strange people. I suppose they belong to the Falásyán. To-day the children were obliged to fast. They are exempted from fasting till their twelfth year, except when they go to receive the Lord's Supper, then they are compelled to fast. Once a-year they are obliged to receive the Sacrament, and this is the appointed day; they therefore are required to keep a strict fast: whoever spits out, or plucks a leaf of a tree, is not admitted to the Communion. They receive a white cloth from the church, in which they stand wrapped up to their mouths from morning till evening, keeping the greatest silence, but they do not understand anything about the meaning of that service. I asked one of them whether he knew why he took the blessed Sacrament; he replied that it was to make him grow. As a great many persons now come to us, I wish we had many copies of the Holy Scriptures in Amharic. The people seem to understand who we are, and why we came into this country.

9th.—The son of Aïto Beku called upon us, and I began to compile a vocabulary of the Gállá language. He told us that one of the Gállá tribes, named Mulofalada, is governed by a queen, who is in some degree dependant on Shwá. The king is said to have invited her to come hither. She replied that if he

* On Christmas Eve.—Ed.

wished her to come, he should have the whole of the road covered with silk; and that, if she had invited him, she would do so. She is very rich and powerful in war; her name is Chameh. In the time of King Abíye, a woman, who was ruler of a Gállá tribe, was in possession of this town. Her name was Ankó; hence the town was named Ankóbar, that is, the door of Ankó, for bar means "door." In Shwá there are fifty-one frontier guards (Abagaz), whose duty it is to inform the king when any strangers attempt to enter his territory; they are bound principally to secure the frontiers against inroads or any other harm. In them we may see the Margraves of old in Germany. Walázma is the title of the Mohammedan Abagaz; thus we have Walázma Mohammed, and Walázma Músa, on the frontiers of 'Adel.

11th.—Our transcriber, Wolda Tsadek, told me that I'fát is divided into Upper and Lower I'fát. Makhfúd (falsely spelt Marfood in our maps) belongs to Upper I'fát. Aliu-Amba is in Lower I'fát. The district of Makhfúd, it is true, is generally elevated when compared with Ankóbar and Aliu-Amba and its neighbourhood; this may be the real cause of these denominations. Our Wárkiye told us this evening that the people of Habáb, in the neighbourhood of Maşawwa', professed the Christian faith a short time ago; but they turned Mohammedans on account of a monk, who forbid them to drink camel's milk. Not being inclined to change this custom, they changed their religion. Most of them still bear Christian names. I did not know this, when I was at Maşawwa', or I should have inquired about it. Their language is that of Maşawwa', which is the Ethiopic in a corrupted state.

13th.—Three priests from Debra Libanos came again with several others, and afterwards a man from Góndar, whose name is Gebra Selásé, called upon us. I asked him about Kaffa and Enáryá. He said that it is a journey of 10 days from Góndar to Basso on the Nile, and from Basso to Enáryá 15 days. Coffee is brought from Kaffa, and civet-cats from Enáryá. Shells, coral, and pieces of salt, form the currency there. In the afternoon I called upon the Alaka Wolda Selásé of the church of Tekla-Haïmanót, in Aferbeini, which was also built by the present king.

14th.—This day we had many scholars, and among them a blind man, who seems to be anxious for instruction.

18th.—This day is kept as a holiday by the Abyssinians, in memory of Christ's Transfiguration on Mount Tabor.* I went to the church of Medkhan 'Alem.† They call this feast Ba'ala† Tábór,

* Aug. 6; 13 Náhásé, Ludolf's Comm., p. 425.—ED.

† The Saviour of the World.—ED.

‡ Feast of Tabor.—ED.

but the common people, having no knowledge, call it "Behu." At night the boys make a procession, carrying flambeaux.

19th.—Our former guide Mohammed 'Alí, of the 'Adáíl tribe of Wéma, arrived this afternoon from Tajurrah, but he brought nothing for us. We longed very much to receive some money, as all ours is spent; but we were disappointed. Mohammed 'Alí informed us of the arrival of two Franks at Tajurrah. A priest from Debra-Libanos, who was here to-day, said that Tekla Hāimanót, who is considered as the reformer of the Abyssinian church, was born at Bulga, and died at Debra-Libanos. The King this afternoon sent an Abyssinian cloth to each of us, because it is cold. Being about to send our servant to the market-place, we inquired about the measures used in Shwá. He said that twenty Kunna of grain make one daule; and at present one daule of barley costs two pieces of salt: one daule of wheat is bought for five pieces of salt. In Tigre sixteen measures make a madega, besides, one measure is smaller than a kunna in Shwá. One piece of salt is the price of three loads of wood at Ankóbar. An Austrian dollar of Maria Theresa* is at present worth from 17 to 20, sometimes it will fetch only from 8 to 10, or 12 to 15 pieces of salt. The place where salt is exchanged for coin is Aliu Amba, a large village about 6 miles from Ankóbar eastwards. Most of its inhabitants are Mohammedans. The place where mules and horses are bought is Debra Berhán, about 20 miles from Ankóbar, to the W. These places are the greatest markets. At Ankóbar, a market is held on every Saturday, where sheep, corn, and sometimes fat or suet, and other things, are sold; the market-place is about a mile from the town, on Mount Khakka, near the river Aírára. At Góndar an ounce (Wakíyah) of gold is worth 9 dollars. With regard to commercial intercourse between Shwá and foreign countries, the present circumstances are perhaps favourable to its establishment. The road to the coast would not present any great obstacles if a good understanding were established between the people of 'Adel and the king of Shwá. The trade in mules and horses would be very profitable, as a good mule may be bought at Ankóbar for 10 or 12 dollars, and a good horse for 8 or 9, while on the coast a mule sells for from 24 to 26; so that if bought in Shwá and driven carefully to Tajurrah, a considerable profit would be realised.

20th.—To-day the king sent to us 50 pieces of salt, for which we are very thankful, as all our money is spent: our clothes, paper, ink and everything else is at an end, and the stores left at Tajurrah have not yet come to hand, though we have been here

* Nearly 4s. 2d. sterling.—Eo.

3 or 4 months; nor when they do come, have we any means of paying for the carriage of them.

21st.—A priest named Gebra Selásé told us that the Abyssinians name their leap-years after the four Evangelists, adding 5 days in the year of Matthew, Mark, and Luke, but 6 in that of John: this addition is called *Pagmiye*.* The present is the year of John. We were told to-day by a priest from Guráge, that from Ankóbar to Bulga there are between 1 and 2 days; from Bulga to Guráge from 5 to 8. The road passes through the country of the following Gállá tribes:—1. Yerrer; 2. Roggi; 3. Endote; 4. Adaï; 5. Abbu; 6. Worecherza; 7. Chidda; 8. Abádo; 9. Zoddo; 10. Liban and Gumbíchu. After crossing the river Hawásh, near which is the tribe of Abbu, and travelling for several days, the traveller comes to a large lake, called Swáï, in which there is an island inhabited by monks. There are also two more lakes in the land of the Abbu Gállás, one named Killole, and the other Arzud. The chiefs of Guráge are Keru and Aminu, of whom the former resides at Wachó: both are tributary to the king of Shwá. Guráge derives its name from its situation, being on the left of a person looking westwards from Góndar: for “Gera” means left, and “gíye,” side; hence the compound means “on the left side.” Most of the inhabitants of Guráge are Christians, but a great many are Mohammedans or Heathens.

The Christians are settled in the following places:—1. Aïmel-
lelle; 2. Nurreno; 3. Bezanchúbu; 4. Mánes; 5. Malakdámó;
6. Wogoram; 7. Buíyana; 8. Yudámo; 9. Dachi; 10. Yéttene;
11. Arechat; 12. Heberrer; 13. Arogómane; 14. Dobi;
15. Yawitwi; 16. Yatáboná; 17. Zera Zangania; 18. Mohor.

The places where there are Armenians or Heathens are:—
1. Mazkan; 2. Aborrat; 3. Yakedar; 4. Warúb; 5. Manz;
6. Zabolaz; 7. Yaderek; 8. Wumnan; 9. Allakiro; 10. Duha-
ber; 11. Endagakh; 12. Mazmaz; 13. Magar; 14. Enner;
15. Az-ha; 16. Cháha; 17. Wóllane. The most remarkable
mountains in Guráge are:—Karra, Kotaltiti, Gaferza, Uttukuf,
Make, Teru, Engedokotto, Bodegabab, Dinokoti, Enókaler,
Zert. The largest rivers are:—Vizer in the district of Damu,
Derzaf, Azaz, Shérbanez, Meki, Yamarakwadio. Most of these
rivers run into the lake of Swáï. Three rivers are crossed in the
way from Ankóbar to the Hawásh, the Akaki, Guracha, and
Furri. The currency in Guráge is salt: dollars do not pass
there, but knives, scissars, needles, &c., answer very well.
There is much coffee in that country and many vines. Tazma
honey (of the best kind) is found in the province of Abamáda.

* From *Pagwémén*, a corruption of the Greek *παραμηναι*, ‘the additional’ days.
Ludolf, Hist. iii. 6, 98.—Ed.

Their houses are better than those in Shwá. The Guráge women make mats of the ensété-leaves.*

There are about thirty-nine monasteries in Guráge. The Gállá tribes beyond it are:—Maroko, Laki, Lani, Damo, and Endegan. Near it is the country of the Zenzhero,† where there are a great many Christians and Mohammedans; and 8 days beyond Zenzheró is Mager, the king of which is called Degoye. He is very powerful. There is another tract near Guráge called Korbási, which is surrounded by Gállás on every side; but all its inhabitants are Christians.

22nd.—The fast of the Virgin having ended yesterday, this is a great festival, and the people are eating and drinking to their hearts' content; it is, therefore, called a great Fazika, and as the fast is defunct, it is called Tezkár (a commemoration). The king sent us a cow, some fowls, and eggs on account of this Tezkár, in consequence of which none of our scholars came near us to-day.

23rd.—Our scribe, who is a learned Abyssinian, gave me the titles of thirty-six Ethiopic books.‡ The church of St. George has a library of about seventy volumes. It is very difficult to purchase books, as those who wish to have them, cause transcripts to be made, and there is no book-market. Our scribe told us that the Gállás do not like the Christian religion, because the people of Shwá, they say, are not better than themselves. They also dislike the Ethiopic, because it is a foreign language.

25th.—Several persons called upon us to-day to ask for the Kalem abenat, a medicine which they imagine to be put into bread, and taken by every one who wishes to learn quickly to read and write. We said we did not know of any such a medicine. They believe that every one who comes from Egypt, which they call Giptz (an Egyptian is called Giptzí), is in possession of that medicine. Then how is it, said we, that all the people in Shwá are so ignorant, if there is so good a medicine for removing ignorance? God, in the beginning, laid on man the duty of labouring in the sweat of his brow: all knowledge and skill must be gained by straining our powers both of body and soul. As there were about twelve persons with us, I then read to them the Heidelberg Catechism, which Mr. Isenberg has translated into the Amharic.

26th.—I learnt to-day from A'rkadis, the examiner of baggage, that the highest visible mountains in the Bulga range are Maguzaz, Fantalli, and Wasile.

27th.—Johanes (who was formerly a Mohammedan) told us this morning that the king has caused the binding of the books which we presented to him at our first audience to be cut off, and

* A kind of plantain (*Musa* sp.)—Ed.

† Properly Zhenjeró.—Ludolf, *Comm.* i. 3, 29, 8.—Ed.

‡ See Appendix.

used for another purpose: but we do not think that this is true. The people of Shwá (like those of Tigre) do not much like the Amharic, as they prefer the Ethiopic. We endeavour to make them understand that, as the Amharic is the language of the country, and does not, like the Ethiopic, require a long study, it is greatly preferable to an unknown language. This morning the Alaka Wolda Zerat proposed to me to exchange the works of St. Chrysostom for a copy of the New Testament in Ethiopic. At Angollola I offered him a copy of the Amharic New Testament, but he refused to accept it, as he only wished for a copy of the Ethiopic.

28th.—A priest from Bulga told us that the governor, named Berkiye, resides at Merfata. A large river, named Kasam, passing near Bulga, joins the Hawásh.

29th.—This is the festival of Tekla Haïmanót, whose memory is celebrated three times in the year. First, in December, in commemoration of his birth; secondly, in August, in memory of his death; and in May, of his ascension into heaven. The people of Shwá say that there is a well called Tabal, by drinking of which sick persons are restored to health. Tekla Haïmanót opened it, the archangel Michael, who was his mediator with God, having shown him its place. On this day the king distributes alms (salt) to the poor, and mules to those who cannot walk, in honour of that great saint, who cured lameness and other diseases. When they go to Debra-Libanos they bring back earth from his grave, and at his festivals make a cross with it on their foreheads. They also say that this earth does good in many cases of sickness.

September 1st.—I went very early this morning to the church of St. Michael. The Alaka Wolda Máryám on seeing me, made me sit by his side. I presented to him a copy of the New Testament in Amharic, with which he was much pleased, but he at the same time asked whether I had any in Ethiopic. I afterwards went to the church of Tekla Haïmanót at Aferbeini, and as the service was finished, called upon the Alaka Gebra Selásé.

5th.—It rained very much to-day. In the evening I went to the church of St. George to see the books belonging to that church.

7th.—I learnt from an Alaka, of Makhala, who came to-day to beg for medicine, the names of the different parts of the Abyssinian churches.* The first place at the entrance or vestibule is called Kenye Ma'alti, where the singing-boys and other people stand. The second place is called Kēdiste (the Holy Place), the place of the priests: the third is called Kēduta Kēdatán (the Holy of

* Ludolfi, Hist. Æthiop. iii. 6, 20.

Holies). The king's mother, Zenama Wark,* resides at Zelat Dingaï, in the neighbourhood of Tegulet.

10th.—This is the last day of the Abyssinian year. Our servant, Gebra Giyórgis, talked this evening about Theodore, whom the Abyssinians believe to be St. John, and whom they expect to come about this time and govern Jerusalem.

11th.—New-Year's Day according to the Abyssinians, A.M. 7332. I went to the church of St. George, having heard that a priest was to deliver a discourse in Amharic. I went there too soon; but Mr. Isenberg, who heard the discourse, which was taken from the Zéná Fetrat† and the Book of 'Amáda Mistir,‡ written in the Amharic language, was disgusted with the nonsense uttered. The Debtera Gebra Maryám, who called on us in the evening, said that he was born in the isle of Haig, which is in a large lake in the country occupied by the Chuládère Tribe of Gállás, in the north of Shwá. This island contains about 100 houses, at some distance from a monastery, into which no women are admitted. It is 8 days distant from Ankóbar. Strangers who wish to enter into Shwá are compelled to wait near that lake for the king's permission. The governor of Chuládère, named 'Alí Mariye, is subject to Rás 'Alí at Góndar, and he is at present at war with Béru of Argobba. The priest from Guráge came this evening to receive a final answer, whether I would go with him to his country or not. I refused, though I am much inclined to go now, and intend to do so in the month of December. The Gállá tribes south of Gurage are:—1. Wudasi; 2. Maï; 3. Abbozo; 4. Abozicho; 5. Maso; 6. Lellon; 7. Imer; 8. Fullo; 9. Bánozo; 10. Falandozo; 11. Mirrer. The governor of the town sent us a sheep this evening.

13th.—The priest Zawolda, who delivered a discourse in Amharic in the morning of New Year's Day, came this afternoon to see us. He is one of the most learned Abyssinians I have ever met with, but is very proud. He told us that the Abyssinians have seven Systems of Chronology.

15th.—The priest Zawolda paid us another visit; and in speaking of chronology, when we appealed to Genesis v. and other texts of the Old Testament as a certain foundation, said that the Jews had corrupted the Scriptures, (an opinion I never heard from an Abyssinian before,) and that we therefore could not rely upon the Hebrew text. We answered that we did not suppose he would join the Mohammedans, who say that both Jews and Christians have corrupted the Scriptures. We also endeavoured to prove to him that the Jews have not done so, or

* Golden Rain.

† History of the Creation.—Ed.

‡ Column of Mysteries.—Ed.

they would have altered the prophecies relating to the Messiah. Their care also in reckoning the number of the letters in their Scriptures shows how anxious they have been to preserve the text from any alteration.

16th.—The priest from Guráge told us of a kind of lion, called Dīb A'nbasá, in his country, which has never been seen, but is believed to be exceedingly strong; so that a powerful man is a Dīb A'nbasá. Another priest, born at Fincha, capital of the province of Kwára to the W. of Dembéya, said that the people who live near the sources of the Nile, called by the Abyssinians Abáí (Abáwí), are Christians. I replied, Why then do they sacrifice to the Nile? He answered, It is usual in Abyssinia to sacrifice sheep, &c. in case of sickness or calamities; and such is the custom among the Christians at the sources of the Nile. Mr. Bruce's statement, therefore, that they are heathens is probably incorrect; however, I suspend my judgment for the present. This priest spoke also in high terms of Gusho, governor of Damót, who is now at peace with the king of Shwá: M. D'Abbadie is at present with him. By his means a traveller might gain great assistance in a journey to Kaffa and Ēnarya. When this priest left Góndar, Rás 'Alí had turned Mohammedan; but as his chiefs, priests, and monks protested against it, he was obliged to turn Christian again. In the afternoon Wolda Tesfa, formerly Alaka of St. Gabriel at 'Adwa, whence he was expelled on account of his holding the doctrine of Christ's threefold birth, came to beg for medicine: the great object of all who come to us. The road to Enárya passes through the country of Sidáma, which signifies in the Gállá language "a Christian."

17th.—Several priests inquired whether the Abúná was not coming from Cairo. We answered, that he is not, as the sum of money sent to the Coptic patriarch was not sufficient. There are several circumstances which concur to prevent the nomination of an Abúná. The chiefs of Tigre and Amhárá are at present in the possession of lands belonging to that prelate, and on his arrival, he will be obliged to deliver them up: besides which, the Abyssinians are split into different schisms—the people of Góndar maintain the three-fold birth of Christ; while those of Tigre deny it; so that the Abúná of Tigre is not acknowledged at Góndar; and the Abúná Cyril, who maintained only the two-fold birth, was expelled from that city. Werkíye told us this evening of a large city named Maídaro, on the bank of the river Mareb, in the country of the Shankalas.

20th.—We set out about seven o'clock this morning for Ankóbar, and arrived at Debra Berhán about two o'clock in the after-

noon. On our arrival there, we were lodged in a tattered tent, though much rain was falling.

21st.—Béru, the king's servant, came this morning to our tent to inform us that the king did not hear of our arrival till very late yesterday evening. We sent a message to the king by Béru, begging him to allow us to appear in his presence, and acquaint him with the state of our affairs. We also, at the same time, informed him of Mr. Isenberg's determination to go home by Egypt. Béru returned immediately with a sheep and some bread, sent by the king, who expressed his regret at Mr. Isenberg's leaving him so soon. As it rained very much, we requested to be lodged in a house, and one was given to us by the servants of Zerta Wolda, who is appointed to take care of strangers.

23rd.—We met the king this morning; he was willing to allow Mr. Isenberg to depart. We then told him that I wished to remain here; and, in course of time, to go to preach the Gospel to the Gállás. He answered, that they would kill me: when the people of Shwá attempted to convert them by means of war and incantations, they refused to adopt the Christian faith.

25th.—I set out from Debra Berhán about seven o'clock this morning, to go to Tegalet, the ancient capital of Shwá, and the river Dálacha, which flows at the foot of the mountain on which Tegalet is built. I went in an eastern direction till I came to a mountain, where a steep way leads into the valley through which the river flows. When I had reached the river, I could not find any way to ascend the opposite mountain, on which Tegalet is built; but I could see the place where the city stood, very well. At present there is only a village there, called Etake. I saw a large wall, an ancient work which joins the village to the neighbouring mountain, and has a large opening in the middle of it.

26th.—The king's troops were publicly exercised to-day, on which an annual festival called *Maskal** (in memory of the Exaltation of the Cross) is kept. About nine o'clock we were sent for by the king: we found him seated at the entrance of his palace, surrounded by a number of his great men. We were ordered to take our places near them. A number of soldiers then appeared, having a bundle of rods in their hands, at the end of which a bundle of flowers was tied. A horseman rode up and down several times in front of them; at last he threw down his two lances on the ground, and at the same moment they all threw

* Be'ale Maskal, on the 18th of Maskarem, the first month of the Ethiopic year, corresponding nearly with September, and Tót (Thoth) of the Kopts.—See Ludolf, *Com. Hist. Æth.*, p. 391. Holy-Cross Day, in memory of the Exaltation of the relic of the Cross by Heraclius, who recovered it from Chosroes, is kept by the Western Church, on the 14th of September.

away their rods. Thus was the ceremony finished. The king then mounted upon a balcony, erected several days before, and after a short time we were invited to take our places on this balcony, together with the governors and other favourites of the king. The king was seated in a small closet formed on the balcony, and by his side sat Marech and Chichigú, his favourite governors. The governors of the different provinces, with their troops, then defiled before the king, in a large meadow, firing as they passed by. Their number was about 6000. About two o'clock, P.M., we returned to our lodgings.

27th.—As the king sent to desire us to accompany him to Angollola, I determined to return to Ankóbar. Mr. Isenberg went with the king to Angollola, in order to take leave of him. I reached Ankóbar about three o'clock in the afternoon.

28th.—Mr. Isenberg returned to Ankóbar this morning. He brought me news that a messenger from 'A'dwa had informed the king of the arrival of four Europeans there who wished to come on to Shwá. One of them is a captain; another is a physician; another a painter; and the fourth a monk. The same messenger also brought news, that U'bí, the Dechezmach of Tigre, has put Kasai, son of Sabagadis, in irons.

30th.—The rainy season seems to have returned, as it has rained very much for several days.

1st October.—Werkí inquired to-day, whether we knew anything about a traveller named Arada, who, after travelling much in other countries, came into Abyssinia, so that his name became proverbial. For example, when Rás Michael returned with his troops to Góndar from the country of the Gúderús, he said, "We have travelled like Arada." This evening we were surprised by the wife of a man from Guráge, who is living in our house. She began singing all on a sudden, to which at first we paid no attention; but as she continually repeated the same song, we asked what it was. Our servant Gebra Giyórgís told us that her singing and smoking were meant to expel the evil spirits which, she fears, will bring sickness upon her. The words "*Lamana zaiyazu gena*," which were continually repeated in her song, signify a "prayer before the evil spirits seize me." After finishing her song, she smoked for some moments, and then began to sing again; after which she moved her head about in every direction. When asked what all this meant, she made no answer, but continued this ridiculous mummery. The bystanders brought to her a red fowl, which she kissed and put upon her neck. It did not, however, stay there. She then moved her head again, and changed her cloth wrapper. We remonstrated with her on the folly and sinfulness of these rites, but in vain. "May God visit you," said she, as we were leaving her, "as you have

visited me!" When we inquired of our servant about these rites, he gave us the following account. The Gállás, and all the people of Guráge and Shwá, who are all fond of smoking, believe that there are eighty-eight spirits, called Zaroch (the plural of Zar), who wander about for the purpose of afflicting men with diseases; hence they who feel that they are not quite well, have recourse to these superstitious usages. By smoking, singing, moving their whole body about, and particularly by offering a fowl to the Zar, they hope to scare him away, and to save themselves from the sickness of which they are afraid. The eighty-eight Zaroch are divided into two equal sets, each of which has its Alaka or head. One of these is named Mama, and the other Warrer. Each Zar has also his particular name. During the performance of this ceremony, a peculiar idiom is used. Thus, for instance, they call a fowl Chári, which in Amharic is Dóro. The fowl is at last killed and eaten by the bystanders, except its brains, which are eaten by none except the person who takes the leading part in the ceremony. A red fowl is always preferred. This heathenish rite has been prohibited by the king; and smoking has been forbidden by the priests, as they perceive all who are fond of smoking are addicted to this idolatrous ceremony. Nothing can be more corrupt than the nominal Christianity of this unhappy nation. It is mixed up with Judaism, Mohammedanism, and idolatry, and is a mass of rites and superstitions, which cannot mend the heart. Mr. Isenberg has endeavoured to remove this in some degree, by conversing with the people who come to us, and by composing several school-books, of which I can make use after his departure. God of his mercy grant that our labour may not be fruitless!

[In a letter dated Ankóbar, 5th November, 1839, the Rev. J. L. Krapf says that he had begun to study the Gállá language, and intended, in the month of December, to visit Guráge, passing through the country of the Gállás in his way. He was to accompany a priest named Laaka Maryám, a native of Guráge, who had strongly urged him to visit his country, and he intended to stay there three or four months. The Gállá language, which is spoken throughout a great part of Africa south of the Line, will soon be rendered more accessible to European students by a copious Vocabulary, collected from an intelligent native sent to Paris by a French officer employed in Egypt, and confided to the care of M. Jomard, who has given some specimens of his language in the *Bulletin de la Société de Géographie*, tome xii., Août, 1839.]—ED.

XIV.—*Notes taken on a Journey from Constantinople to Mōsul, in 1839-40.* By WILLIAM AINSWORTH, Esq., in charge of an Expedition to Kurdistān.

[As Mr. Ainsworth's route, as far Kóniyah (Iconium), is that usually followed, those portions only of his Journal which add to our previous knowledge of that country have been here given.—ED.]

MESSRS. AINSWORTH and Rassám, now British vice-consul at Mōsul, embarked in a *káik* (or wherry) on the 2nd of November, 1839, and at the end of 5 hours reached Hersek, on the southern side of the Gulf of Iznikmíd (Nicomedia). The neck of alluvial mud and sand on which this village stands at the mouth of the Dervend-şú (Barrier-Water)* extends upwards of two miles into the sea. The neighbouring lagoons render the place so unhealthy that none but the attendants at the post-house reside there. It is not far from the site of Pronectus, from which there was anciently a ferry to Libyssa, now probably Harakah, as the neighbouring ruins show. Gekbuzeli (pronounced Geibizéh), anciently Dacibyza, and Máldisem to the west of it, were supposed by Major Rennell and Colonel Leake to occupy the site of Libyssa. They then travelled along the outskirts of Gók-tágh (Heaven-mountain), the western extremity of Olympus, consisting of sandstone, with a varying dip N. or S. at a moderately inclined angle. The village at the pass, called Dervend (Derbend, *i. e.* Barrier), is chiefly inhabited by Greeks. Early on the third day they came in sight of the beautiful Lake of Izník (Nicaea). The hills by which they descended to its shores are lime and sandstone resting on schist and quartz rock. Izník, of which the double walls are in great part still subsisting, has not now more than 150 houses, one-fifth of which only are inhabited by Greeks. These crumbling walls, and their intersecting towers, oblong, of white marble, and semicircular, of red bricks, covered in most places with luxuriantly climbing shrubs, are extremely picturesque. Two fine gateways and the remains of a Christian church are particularly deserving of notice; but the latter does not appear older than the time of the Lower Empire.

On the 5th of November, after travelling through a valley at the eastern extremity of the lake, and passing a large artificial dam or mound near Karádún, about 5 miles from Izník, they began to ascend hills of the same rock as those last mentioned, and after crossing a ridge, descended through a rocky glen and narrow pass into the valley of the Lefkeh Şú (River of Leuce,†

* Named from Kiz-derbend (Virgin's-barrier) to the S.E.

† Pronounced Lefki by the modern Greeks. Mr. Ainsworth says it is here called Sakáriyeh, and supposes it to be the main stream of that river. It receives the waters of Yeni Shehr and Aín-göl in this valley, and beyond it, those of Vazir khán and Bileh-jik.

the ancient Gallus), which they crossed by a bridge, and soon reached that town, which has only 400 houses. The low land in this valley, which is peculiarly picturesque, consists of red and brown tertiary limestone; and the hilly tract to the east of Lefkeh is a brown sandstone, with red and white marl dipping north, succeeded by a tract of trachyte; after which comes a range of precipitous limestone rocks, through a deep rent in which the river Sakáriyeh probably forces its way. The town of Khusrev Páshá, or Vézir Khán, at the summit of this beautiful pass, has about 100 Greek and 50 or 60 Mohammedan families; and furnishes annually 4000 ókahs of silk. The valley of the Lefkeh river soon becomes very narrow and less fertile; and the high-road, crossing the stream by a bridge, leads over stony hills of trachyte to a level and slightly cultivated upland. Bilehjik, on a limestone rock, is now visible 3 miles distant on the right. The descent commences at the distance of $2\frac{1}{2}$ hours (about 7 miles), and passes through beds of conglomerate sandstone and marl, with some broken trachyte. The hills to the north, through which the Sakáriyeh and its tributaries pass, appear to be limestone which has suffered from volcanic action. To the south a lower range of trachyte is succeeded by limestone, and well-wooded hills; at the foot of which is Sógut,* a small town, named from the many willows in its neighbourhood, and containing about 400 houses, pretty equally divided between Christians and Muselmáns.

Nov. 7th.—A journey over hill and dale, with much wood, for 3 hours, brought them to a more open tract of micaceous schist, lightly cultivated. In one place some fragments of columns and architecture seemed to mark an ancient site. Beyond this, in crossing an extensive plain, they had a distant view of Eski-shehr, about 7 or 8 miles S. 54° E.

That town, now almost abandoned, consists of two portions, one at the foot of the hills, the other between two rivulets in the plain, where the market is held. There is a khán, and a manufactory of pipe-heads from the magnesian and silicious substances called by the Germans "meerschau" ("sea-foam or spray," from its white colour). The pits whence it is obtained are said to be 8 hours distant (24 miles), on the road to Servi Hışár. A specimen, procured by Mr. Ainsworth at this place, fresh from the mines, prove it to be a hydrated silicate of magnesia. It appears to be found in a bed of volcanic rock, similar to that of Garsaura, which crowns the hills S. of Eski-shehr, and rests upon strata of talk-schist and serpentine. This seems to be only a local variety. It is a porous, friable stone, almost entirely composed of small-

* Pronounced Sógut.—Ed.

grained vitreous or transparent felspar, with here and there crystals of augite or pyroxene. In the most common varieties which are of a light grey colour, when carefully examined with a glass, each separate microscopic grain is observed to be in a state of decomposition on its surface; and, like other decomposing felspars, is passing into a variety of percellanite kao-lin, or pe-tun-tse, as it is indifferently called. In certain varieties of this rock the process of decomposition has proceeded further, and the result is an uniform pulverulent mass, imbibing water with great avidity. The cerous lustre and more close texture of other varieties of the same product, attest the existence of larger proportions of magnesia in their composition, and those varieties alone are sought for on account of their utility. They exist, however, chiefly in combination with more impure and coarser varieties; and hence, at the magazines at Eski-shehr, there is much cutting and reducing before the choice pieces are polished previous to exportation.

In the hills of Eski-shehr the meerschaum is associated with breccia and compact brown silicious rocks, which latter is most common in the neighbourhood of basaltic formations, such as are frequent between Eski-shehr and Seyyid el Ghází. At this latter place are cliffs formed of thin alternate beds of the same white and grey rock, sometimes so friable as to be almost pulverulent, at others more uniform, and at others containing breccia; and lying upon these there are various kinds of silex.

Eski-shehr, by observations made with the boiling-point thermometer, corrected by Colonel Sykes's Tables, is at an elevation approximatively of 2308 feet above the sea.

9th.—Their road from Eski-shehr lay over uplands, terminating here and there in moderately high terraces of rock, or stretching out into wide unvaried plains. The hills are covered with low shrubs; the low land, however, has but a scanty vegetation. The sheep of this tract, which is open and exposed, and has an average height of 3000 feet, have clean and light fleeces; and the goats have (as throughout Western Asia) an underdown, although their upper fleece is not so silky as that of the true Angora or Kurdistan breed.

The goats of the central upland of Strabo's Phrygia Epictetos are further remarkable for their short horns, and their various colours, being generally reddish-brown and black, but sometimes black and white, or reddish-brown and white.

After passing round a wooded hill of trap-rock, they crossed a fertile valley, watered by a stream 30 feet wide by 1 foot in depth, and then entered into the town of Seyyid el Ghází, situated in a narrow ravine at the foot of the cliffs which bound the valley to the east. This town contains about 600 houses of Muselmáns, and is much venerated by Mohammedans on account of the saint

who is buried in its sepulchral chapel. A Tekiyeh (convent) and other religious buildings, not quite so ruinous as usual, are picturesquely perched upon the cliffs above the town.

10th.—The ravine Seyyid el Ghāzī enters the hills in a direction of S. 8° E., and passes, as previously noticed, through silicious rock and lava, which on the upland are soon succeeded by a distinct dark-coloured trap-rock, with only a few dwarf oaks and junipers. At a distance of about 6 miles from the same place limestone succeeds to the silici-calcareous rocks, from which spring trees of oak and arbor vitæ (*Thuya*). A small, fertile valley in the midst of this wooded district, contains a village of about 100 houses, called Bārdāk Chilī Kōī,* where remains of ancient buildings, the columns apparently of the age of the Lower Empire, seem to show the vicinity of some ancient town.

A forest of tall pines then crowned the wooded eminences, and led, after about 2 hours, to a large cultivated plain. A wooded hill and more open country brought the travellers, amidst a pouring rain, to the wretched village of Khusrev† Pāshā; in which, as in Nizib, a large and ancient Christian church has been converted into a mosque.

11th.—Forests similar to those on the other side of Khusrev Pāshā, growing on soil, the substratum of which, is a blue and white granular limestone, alternating with clay-schist, continue to the S. of that place. A few organic remains and impressions are found in the softer beds of the sedimentary deposits, which here begin gradually to rise into hills from 900 to 1000 feet above the neighbouring valleys. This is an outskirt of Emīr Tāgh which is tame in its outline, but from its abundant wood and verdure, always pleasing and occasionally very beautiful.

About 16 miles beyond Khusrev Pāshā lavas and tuffa, with beds of obsidian and coloured silex, are first seen. As the decomposition of these substances takes place at different rates, they soon form terraces, beset with caverns, natural or artificial, which have been used as chapels, hermitages, or habitations.

The first have ornamented portals, and were evidently sepulchres: near the ruins of an ancient village further on, there are many large caves, which served as habitations or oratories; and near the commencement of the district of Bayād,‡ a rocky hill by a spring, is full of them.

That district is a high upland in Emīr Tāgh, rather exposed, but having some good arable land. Beyond it, low hills of schist and quartz, succeeded by limestone, form the southern de-

* Pitcher-freckle-ville; or, if Chilī, Partridge-ville.—Ed.

† Khusrev, pronounced Khusref, is the Khosrau (Chosroes) of the Persians.—Ed.

‡ Biyāt in the *Itinéraire de Constantinople à la Mecque*, p. 91.—Ed.

clivity of Emír Tágh, which descends to Búlávádín by a long and very gentle slope.

This small town contains 3000 inhabitants, exclusively Muselmáns. Its houses are only of one story; and there are five mosques, some kháns, and a market-place. A solitary minaret at some distance from the town marks, no doubt, the site of a ruined mosque.

The great plain in which Búlávádín stands is bounded by Sultán Tágh on the S., and by Emír Tágh on the N., and has several lakes. Its elevation, as ascertained by the boiling-point thermometer, is 2900 feet above the sea, and it lies between ridges dividing the waters flowing towards the Black Sea from those which flow towards the Mediterranean. In that peculiarity, it resembles the plains of Kóch-Hişár, V'ghún Sú, Kóniyah, and Nigdeh, in each of which there are similar lakes.

12th.—About 2½ miles S. of Búlávádín the plain becomes marshy, and is at times difficultly passable. There is a central water-course, nearly stagnant, which at some seasons flows slowly in an easterly and north-easterly direction to the permanent lake, which occupies the lower part of the plain, and which varies much in size at different seasons. The road is carried across this marsh on a raised causeway for more than 5 miles. In the marsh there is an abundance of birds, such as starlings, plovers, snipes, quails, ducks, geese and bustards, vultures, blue kites, merlin-hawks and buzzards.

At about 9 miles from Búlávádín is the foot of Sultán Tágh, where the ground begins to rise; and the villages of Sinák Dereh, and Sinák Yaká, stand at the entrance of two ravines in the hills.

Sultán Tágh, although not very lofty, is remarkable for its bold, Alpine character, and massive, rocky outline. Its general elevation appears to be from 1000 to 1500 feet above the level of the plain, and perhaps 4000 feet above the sea. Its culminating point above Ak-Shehr was, even at this season, only tipped with snow. From an examination of the pebbles brought down in the bed of its winter-torrents, it appears to consist chiefly of limestone, lying on argillaceous and micaceous schists. This chain is not so extensive as it appears on our maps. The lakes in this tract, generally said to be salt, are, from all we could learn, fresh, and abound in fish; nor is there any substance in the neighbouring soil at all resembling the saliferous sand and sandstone which nearly surround the Lake of Kóch-Hişár.

13th.—From Isháklí, a large village, surrounded by gardens, they proceeded to Ak-shehr, about 12 miles distant. The country at the foot of Sultán Tágh is here well cultivated, and often very pleasing. The cultivation extends for a mile or two in the plain; but beyond that northwards, all is marsh or water.

Ak-shehr is situated at the entrance of a large valley watered by a small river. Its houses rise above one another in terraces, or are prettily scattered amid groves and gardens. There are fifty Armenian families. From Ak-shehr, an extensive, grassy plain stretching far away in an easterly direction, is bounded by a few ranges of low hills.

14th.—At $3\frac{1}{2}$ miles, nearly S. by E. from Ak-shehr, they passed Karyat, a village on a hill, and entered a plain bare of trees, but yielding a little corn. This plain, occasionally varied by a village, rivulet or some rubly limestone, extends to Arkad Khán of the maps.

Beyond that place, the road leads over low hills of limestone (apparently of the chalk formation) to the valley of I'ghún,* remarkable for its two lakes and stream running between them; respecting the junction of which Mr. Ainsworth had not an opportunity of satisfying himself. At the entrance of this small town there are some sacred buildings of the Mohammedans, and a rivulet which flows northwards to a lake, and has two villages at its further extremity.

15th.—A tract nearly similar to that just described, leads through Khánúm Khán (the lady's khán) to Ládik, or Jórgán Ládik,† a village situated on a mound of ruins. Numerous fragments of Byzantine architecture, as well as its present name, make it not improbable that this is the site of Laodicea Combusta, placed by some ancient writers in Lycaonia, by others in Pisidia or Phrygia, which serves, at all events, as Cellarius remarks, to assist in determining the part of Lycaonia in which it is to be sought.

16th.—The valley of Ládik, which is in a kind of recess, is bounded on the south-east by a hilly district, composed of brown and blue argillaceous schist, passing into common mica-schist, with veins of quartz, lying under is limestone. A remarkable rock on the top of the hills to the right is called Kiz Káyá-si (maiden's rock); and 2 miles on the road are the ruins of what was evidently an old Greek village; beyond which, an unproductive valley opens upon the great plain of Kóniyah. Not far from Kóniyah, there is a Greek village and monastery of some antiquity on Mount Siliyá.

19th.—Kóniyah, as one of the great cities of Asia Minor, has been much visited by European travellers, who have each, from the days of Niebuhr to those of Colonel Leake and Mr. W. J. Hamilton, contributed their remarks upon its past and present condition. It appears that the first of these travellers made a

* Or I'ghún, *Itin. de Constant. à la Mecque*, p. 93.—ED.

† Yúrúkan Ládik, *i. e.*, Wandering (Turkománs) or Láziqiyeh Karamán, *i. e.*, Karamanian Laodicea.—ED.

sketch of the town, which will no doubt embrace its greatest peculiarity, the distribution of its walls.

After visiting many of the great towns of Asia Minor, Angora, Kaizeriyah, Kašamúni, &c., Kóniyah certainly appears the most fallen and ruinous of all, and yet it stands among the first, in its early renown for size, population, and riches. Strabo particularly alludes to its being well built, πολίχνιον εὖ συνωκισμένον. Pliny says, "urbs celeberrima Iconium." In the Acts of the Apostles (ch. xiv. v. 1.) we find it noticed as frequented by a great multitude of Jews and Greeks. In the ecclesiastical notices, according to Cellarius, it is also placed first upon the list as a metropolis. Hierocles also, "Iconium metropolis."

Independently of other circumstances, numerous monuments of various kinds, principally in the Saracenic style of architecture, fully attest that under the Mohammedans, this city has always been one of great celebrity and sanctity, as well as a seat of learning. There are at present the remains of upwards of twenty medresehs or colleges, a number nearly equal to that of Baghdád, the city of the khalifs themselves.

There are still several handsome Mesjids or Jámí's in Kóniyah. The Sherif Altún Jámí' is the largest; next comes that of Sultán 'Aláu-d-dín, our Aladdin; and then the Jámí' of Sultán Selím, whose building exploits would have delighted the heart of a Procopius.

Many of the sepulchral chapels are also of great sanctity. In the journal of the sixth campaign of Suleimán (1534) we find the Sultán halting at Kóniyah to visit the tomb of Mevláná Jelálu-d-dín.* Several that now remain are objects of veneration, and even of pilgrimage; but generally speaking, they and the colleges are crumbling into ruins.

'Alí Páshá, then in command there, had about 6000 regular troops at his disposal, of which about 500 were in Nigdeh, and 100 in Sárindah. The militia of the Páshálik had been disbanded since the reverses at Nizib; and the guns attached to that service were sent to Constantinople. A sort of quarantine, limited to the fumigation of persons, had been established at the entrance of the city.†

Nov. 22nd, 1840.—This day, says Mr. Ainsworth, we quitted Kóniyah, travelling over its wide and level plain in a direction S. 50 E. On this plain, the beautiful bird called the Aleppo plover (Lesson, Man. d'Ornithologie) first makes its appearance. It

* Rúmí, author of the Mešnaví, a much-admired ethical poem in Persian, and head of the Mevlevi order of Dervishes or Fakírs.—Ed.

† The remainder of this paper is extracted from Mr. Ainsworth's Report.—Ed.

soon almost entirely supersedes the common plover, pewit, or lapwing; and is met with as far as Persia.

The soil of the plain became soon very saline, and communicated its peculiar character to the vegetation. It afforded us much amusement to observe the sudden impulse with which the camels rushed towards the now frequent tufts of *Mesembryanthemum* and *Salicornia*, reminding them of plains with which they were probably more familiar than with those of Asia Minor. After travelling about five hours, we came to a marsh, where the road was covered with small frogs, as if they had been showered down from the sky, but in reality they had only issued from the waters; and various birds of prey were enjoying an abundant repast.

In another hour we arrived at Khákhun, a village of herdsmen, situated in the midst of the marsh, and there we reposed for the night.

23rd.—We started at an early hour, in the midst of a dense mist, which only allowed us to distinguish that we were travelling through the same marshy ground. About 7 miles from Khákhun we came to Ismíl, a large village just without the marsh, and built upon a dry gravelly plain, not far from the extreme W. of the *Qarajah Tágh*.

At about 7 miles further from Ismíl the weather cleared up, and we found by back bearing, the hill of Siliyá above Kóniyah N. 88 W., the culminating point of *Qarajah Tágh* N. 86 E., and *Hasan Tágh* N. 66 E.

About 4 miles beyond this, the ground began to rise a little; and, passing a slightly elevated tract of coarse limestone, we entered upon a grassy plain affording pasture to numerous flocks. 6 miles further on we passed over some higher ground formed of coarse limestone, then descending a rocky terrace about 20 ft. in height, entered upon a cultivated plain continuous with that of Sultán Khán and Kóch-Hisár (*Hasan Tágh* bearing N. 56 E. about 15 miles), which as far as *Qarabunár* (Black Spring), at the foot of *Qarajah Tágh* is only about 2 miles in width. I am not aware whether Mr. W. J. Hamilton has corrected the geography of this part of the country; but in most maps, as, for example, that published by the Society for the Diffusion of Useful Knowledge, *Hasan Tágh* is placed nearly a degree in latitude to the N. of *Qarabunár*. *Qarajah Tágh* is continued northward to *Hasan Tágh* by low hills which border the plain previously noticed, and to the identity of which, with that of the lake of Kóch-Hisár, I can bear sufficient testimony, as I took the bearings of many known points, more particularly the remarkable volcanic hills near *I'n Aví* and the *Murád Şú Göl*.

The same chain of hills (incorrectly marked in the maps as the

Bulghâr Tâgh) is connected also to the E. with Hasan Tâgh by low hills and volcanic cones dispersed over a rocky district. The road from Ereglí to the Gólek Bógház, it is important to remark, is not carried through Taurus (Bulghâr Tâgh) as on the maps, in a direction S. of E., but for 4 hours at first to the magnetic N. 50 to 60 E., having all that time the plain of Bór or Tyana to the left, and between the traveller and the foot of Hasan Tâgh and its more southerly cones. I was the more anxious to form a correct idea of the more southern extension of Hasan Tâgh, as upon that depends in a great measure whether or not the road given in the Theodosian Tables, after passing by Congustos (Túsun Uyuğ) and Petra or Perta (Uyuğ Boyád), and crossing Strabo's route from Ephesus to Tomisa, at a point where Mr. Hamilton fixes Nazianzus, and where we found Gelvedeng and other ruins, passed over the mountains to Tyana, or continued along the plain from Uyuğ Boyád towards Karâ Binâr. I am now satisfied that Mr. Hamilton and ourselves visited the spot where these three ancient roads met; for Karâ Binâr is quite out of the way from Petra to Tyana, whither the Theodosian road is carried: and Mr. Hamilton has described the route in the Antonine Itinerary as it is extended from Andabilis to Nazianzus and Archelaüs Colonia (Ak Serâi).

The facts here detailed are also of importance towards ascertaining the reason why Cyrus and Alexander should pitch their tents at Kilisâ Hisâr, in the neighbourhood of Bór, which appears so far N. of Ereglí, and has been shown so satisfactorily by Mr. Hamilton to be the ancient Tyana. The knowledge of the direction of the road from Ereglí at once shows that, except from the position of the Turkish posts, the traveller would have no need to go to Ereglí in his road across Mount Taurus, the passage through which is to the N. of that town, and is, moreover, inaccessible to an army for a large part of the year; and at other times, hardly to be approached, on account of the extensive and almost impassable morasses, occasioned by the drainage into that basin which forms the ancient Tyanitis, the peculiar features of which are now well known.

The town of Karâ Binâr is inhabited chiefly by Turkománs, who feed their flocks in the plain in winter, but emigrate in summer towards various points of the great plain of Sultán Khán. Its houses are almost all of one story, rather from fashion than deficiency of means; for many are well furnished, according to the taste of the country. Sultán Selím built a handsome jámi' here, but it is falling into ruins; attached to it, there is also a large well-built khán covered with lead, the greater part of which has long since been converted into bullets. There are several salt-petre works at this place.

Extending southwards from *Karajah Tágh*, and closing the Plain of *Kará Buñár*, there are, first, a rocky cone with naked stones like ruins, then a pair of twin conical summits of volcanic cinders; and further on, a higher cone of similar character, with a truncated summit—a feature which here belongs to all the hills of volcanic cinders, whether black or white (augitic or feldspathic); and whether in the crater of volcanos, or on their sides: this peculiarity has also been observed by Mr. Hamilton. Beyond these truncated cones a rocky range of low hills sweeps round to the W. as far as a group 3 miles to the S.; and extends thence in low rocky hills to a conical mound, on which there are the ruins of two towers, overhanging the town of *Kará Buñár*; to the S. of which, there is a steril, stony district.

24th.—About 3 miles from *Buñár*, in a direction to the S. 55 to 60 E., after ascending these hills of volcanic rock, there occurs a remarkably distinct crater, with a heap of cinders in its centre, forming a truncated cone. The lips of the crater, which is about 60 feet in depth, are for the most part formed of solid black basanitic lava; but white and yellowish-white tephrites, besides other mineral substances, are found in it. The cone in the centre appears to be entirely formed of black cinders (augitic), and is about 100 feet in height. The bottom of the channel, left between the outer walls and the central cone, is for the most part filled with water, and in places afforded a fine crop of grass for the horses and cattle which were quietly feeding there. A little beyond this, we came into a long narrow plain, stretching S. 76 E. along the foot of *Karajah Tágh*, passing other conical mounds of black cinders till we came to the last slope of the hills over the valley or plain of *Tyanitis*, *Ereglí* bearing S. 68 E. at a distance of 12 miles or upwards.

In the midst of the marshy plain over which we had now to travel, and where the central channel “drags its slow current lazily along,” is the village of *Hárhán*, inhabited by herdsmen. There are two roads to this place, one used in winter very circuitous, the other in summer, by which we were still enabled to pass; but great part of it was already under water. Hence we had alternately marsh and dry ground as far as *Ereglí*, situated at the foot of the western extremity of the hills which gradually rise from thence till they are lost in the snow-clad summits of *Bulghár Tágh*. It is a poor place, containing 800 houses of Mohammedans and 50 of Armenians, and has a small market. Notwithstanding its position, it was not garrisoned. Being embosomed in trees, to the traveller coming from the *Gólek Bógház*, *Ereglí* has a pleasant and inviting appearance, nor are its inhabitants inhospitable.

25th.—We started in a direction of N. 50° E., and passed two

rivulets flowing to the N.W. Our road lay along the low hills which border the plain to the E., and are composed of red sandstone in bluish cream-coloured beds, conglomerated limestone, and gypsum. To our right we had the lofty chain; for the proper name of which I had already inquired of several persons, who all called it Bulghár Tágh. As I thought, however, the name might vary in different places, I again inquired, when resting at its foot, and also in the villages on the Cilician side, when the name was uniformly given, so that I feel convinced every future traveller on this road will find it universally in use. Ramadán-O'ghlú, &c., and the other names given in our maps, are probably derived from Turkomán tribes inhabiting its lower ranges at the eastern or Cilician foot of the chain.

However it may be with regard to the plain of Nigdeh at present, it is certain that with regard to the Gólek Bógház* no correct idea has yet been given to the world; and the peculiarity of its hydrographical features are not pointed out in any work that I have seen. Its peculiar characteristic is, that the source of the Savus or Seihún is in the low hills on the western side of the chain, and that the Pass, after following the course of these waters for some distance, turns *up* the valley of a tributary stream, at the summit of which, and at an elevation of 3812 feet, are the fortified posts of Mohammed 'Alí Páshá; immediately beyond which, the waters again run to the E. and S. of E., rushing through a tremendous gap in the mountains, and thence flow directly towards the Cydnus or river of Tarsus. I shall describe this pass more in detail hereafter; but have now ventured to record, in the fewest words possible, its leading features, that they may be better understood; for travellers have hitherto uniformly regarded the stream that passes through the above-mentioned gap as the great river of the mountain-pass which Col. Chesney and the writer of this paper crossed in a journey through the Bádinján O'ghlú district, and found it to be a tributary to the Seihún.

At a distance of 12 miles from Ereglí we came to a small village called Kayán, with a rivulet flowing N.W. Our route now turned to S. 60° E., as if bent upon carrying us into the heart of the hills. We ascended a short distance among low hills of red sandstone and sand; then up a hill of conglomerate and limestone: beyond which was a cultivated field. At this

* The description of the Gólek Bógház, or Pass, through the Bulghár Tágh, is not included in my Memoir upon the Cilician passes, as I had at that time only been partly through it. It is therefore well to notice here that they are generally called by the ancients the Cilician gates,—Strabo (lib. xii. p. 370), Arrian (lib. ii.), Cellarius (lib. iii. cap. viii.), but neither Arrian nor Quintus Curtius (lib. iii. cap. iv.); nor, I believe, any of the historians of Alexander's campaigns confound these gates with the Amanian, which "were near the sea." Cicero (lib. v. ad Attic. epist. xx.) calls them the gates of Taurus, leading from Cappadocia into Cilicia.

point, the few drops of water first collected began to flow to the N.E. This was about 4 miles from *Ḳayán* and 3 from *Kolú Kushlá*; and immediately beyond its source the rivulet flows through a little pass in basanitic rocks, and continues along the valley in a direction of N. 70° E. till it opens upon the cultivated plain of *Kolú Kushlá*, where it is joined by other small streams, which united, flow down along valley and pass on stretching to the S. 80° E. The hills now begin to attain a somewhat greater altitude. Those on the S. side of the valley are composed chiefly of gypsum; those to the N., which are more lofty and rugged, are composed of trap-rock, more especially basanite, spilite, wacke, and tuffa. *Kolú Kushlá* is a cleanly aggregation of *Turkomán* houses, with a large *khán* and a post station.

26th.—This day's journey carried us to the foot of the central chain of the *Bulghár Tágh*. And it appears, from an examination of the rocks and fossil organic remains, the details of which would be out of place in these notes, that the western, like the eastern declivities of *Taurus* and its outlying chains, are composed principally of tertiary deposits. The succession of these rocks on the eastern side has been described in my "*Researches, &c.*" And it may be remarked that the main difference between the two aspects of the same chain are, that on the western side the variety of formations is by no means so great as on the eastern, while the frequent and extensive disruption of igneous rocks amid the formations on the W. side has given rise to an infinite variety of altered rocks too numerous to be here specified; and has, at the same time, rendered the existence of organic remains much more rare, and the age of the formations more difficult to determine. It is necessary also to remark, for the use of future travellers, that the road we followed upon this occasion, direct from the pass to *Adanah*, presents neither the great variety of formations, nor the vast number of gigantic fossils, which I met with on my former journey from *Tarsus* to the lead-mines in the valley S. of the *Gólek Bógház*. Near the Roman arch, on the road to *Tarsus*, the tertiary limestones are associated with mica schists; and in the great chain of *Bulghár*, cretaceous rocks, converted into a non-fossiliferous, hard, and granular rock, are piled up in precipices of fearful height and grandeur upon the same mica schists; but I have not detected in any part of the chain sedimentary formations which could be said to be inferior to the chalk.

The waters of the valley of *Kolú Kushlá* sweep gradually round from N. 85° E. to S. 40° E. Farther on, the valley widens and contains one or two small villages at the foot of the hills; and gardens with vineyards and groves of walnut-trees ornament the rivulet's banks. About $3\frac{1}{2}$ miles the lateral valley of *Kol Kushlá* terminates in a more extensive valley, nearly parallel t

the central chain, and containing a large rivulet, which flows from the S.W. This valley is bounded to the E. by a rocky range of hills clothed with wood, composed of limestone, sandstone and altered rocks reposing upon rocks of igneous origin. And between this chain and the loftier summits of Bulghár is the valley of Aluguga, also with its tributary rivulet.

The general direction of Bulghár Tâgh, from a variety of bearings, may be said to be from E.N.E. to W.S.W. The direction of 'Alí Tâgh, the great snowy range N. of this, I believe to be different; and probably, in consequence of a different structure; the determination of this point remains for future travellers, when the prolongation of Taurus to the Dúrdún Tâgh, and by Ak Tâgh to the sources of the Tigris, will be completed. The line most wanted in the geography of this part of the country, after the determination of the sources of the Seihûn on our previous journey, would extend from Nígdeh to Mar'ash, by which the composition and configuration of 'Alí Tâgh would probably be determined, and the various tributaries to the Seihûn and Jeihûn satisfactorily delineated. So well convinced have I long been of the value of such a determination, and of a description of the interesting country around Farráshah, that, had I on this occasion been travelling for geographic purposes solely, and not making a winter-journey to Mósul, scarcely anything would have prevented me from exploring those tracts. Col. Chesney's route to Sis, and Lieut. Murphy's bearings at Anazarba ('Ain Zerbah), will however do something. I heard that M. Fischer, of the Prussian corps in the service of the Sultán, who superintended the construction of the Turkish outworks in the Gólek Bógház, had collected many materials for improving the geography of the Taurus; and that the Barons Moltke and Wincke, who laboured hard in the same cause, returned after the battle of Nizib by Bóstán to Malátiyah, a very desirable line.

After entering the valley of the main tributary to the Seihûn, at a distance of 6 miles, the road leaves the valley of the river, for a short time crossing over hills of altered rocks, with a ravine through which it would be very difficult to convey heavy guns. From these eminences the road passes almost directly along a gentle slope, to a point where the first-mentioned stream coming from the left is joined by another large rivulet flowing from the right, and coming from the valley of Aluguga before noticed; these two rivers united flow through a somewhat narrow pass, and this point has been made the seat of the Turkish outworks to protect the Gólek Bógház. The peninsula between the two rivers commands the centre of the valley, and is occupied by a battery, which at the time of our visit consisted of four guns and two mortars. The valley below the junction of the two streams

is crossed by a palisade which stretches up the hill, upon the declivities of which, to the left, are two small batteries at different heights, and on the right side similar entrenchments exist, one at the foot of the hill, the other on the declivities. This spot is called Chiftlik-khán, and there is also a bridge besides the Kerván-seráí. It is now defended by a few gunners and Arnáuťs, whose chief business appears to be to stop the deserters who continually pass through the defile. As there was no resting-place here, nor onwards for some distance, we turned up the valley of Aluguga, by a bad road. About $2\frac{1}{2}$ miles up the valley, we came to the Kishlá* (winter-quarters), which we were disappointed at finding yet untenanted, so we had to proceed about the same distance further, when we found the villagers occupying two separate spots. About 3 miles further up, a mine of argenteriferous galena is worked upon a small scale. The valley, which pursues a direction of from 60° S. to 70° W., to from 60° N. to 70° E., is generally narrow, but contains numerous vineyards and many plantations of walnuts and cherries; the latter, which are of three different kinds, are much sought for both at Kóniyah and at Adanah. There were many picturesque points of view in this wooded and rocky valley, above which the central chain of Bulghár towers along its whole length almost perpendicularly to a height of upwards of 1000 feet above the spectator. In this central chain we only observed limestone resting on talc and mica schists, but in the outlying chain were a great variety of altered rocks, among which, besides a variety of spilites or amygdaloidal formations, was a remarkably bright red rock, which also abounds in other parts of the passes, sometimes with a large conchoidal fracture and even texture like a clinkstone or phonolite, but more generally rudely compact, with a splintery fracture like a jasper or thermantide. Besides, there were talc and mica schists as at the Yailá of Aluguga, diallage rocks, bluish steatitic schists, and schorlitic steatites.

27th.—Having regained the junction of the streams at Chiftlik-khán, our route lay down the valley S. 82° E. A little beyond the khán we found a rivulet, the waters of which were warm, but I had not a thermometer at hand to ascertain their temperature. About 5 miles down the valley there is another palisade carried across a narrow portion of the pass, and a battery is placed upon the heights above. This part of the pass is well wooded: $1\frac{1}{2}$ mile further on, the road is hewn out of hard rocks of saccharoidal limestone, and on turning the corner we passed the first Turkish outwork, consisting merely of a wall carried in part across the valley, with an adjacent guard-house. There are a few soldiers at both the stations last mentioned.

* Here pronounced Kishlá.

Immediately beyond the Turkish outwork is a bridge lately built by *Mohammed 'Alí*, and named from a spring close to it, called *Shakar buniár*, "Sugar spring," clear or fresh water being always designated as "sweet" by the Orientals: hence the "sweet waters" of Constantinople, a muddy rivulet flowing into the "golden horn."*

The valley opens a little beyond this, and here are the first guard-houses of the Egyptians; and 10 min. beyond them the road permanently leaves the valley of the *Seihún*, which flows on in a south-easterly direction, while the road is carried over hills of diallage rock, first S. 30° W., and then S. 10° W., down to the banks of a large rivulet flowing from the S.W. At the point where the road leaves the tributary of the *Seihún*, *Ibráhim Páshá* had established a quarantine of 10 days, which happily for us had lately been done away with. It is certainly remarkable that quarantine regulations should have become so prevalent in the East, where each *Páshá* establishes them in his territory: thus *Háfiz Páshá* had them between *Malátiyah* and *Sívás*; the *Páshá* of *Kútáhiyeh* on entering his government; *Háji 'Alí* on entering his capital; and *Ibráhim Páshá* suggested the more vexatious annoyances at *Gólek Bógház* and *Beirút*; while *Iskanderún*, the *Orontes*, and *Latákiyah* were left open.

Travelling up the new valley we had now entered, we reached its crest after a journey of 2 hours and upwards, and there found the village and market which the *Páshá* has established for the benefit of the soldiers stationed at these important posts; but we were detained there a day waiting for horses. The post, according to the Turkish system, having been done away with in the *Páshá's* territory as well as the *tátárs* (couriers), a few horses alone are kept along the great lines of communication for carrying despatches solely, which is done by successive *Súrujis* at each stage; while for the traveller's convenience the horses are sent for, as occurred in the present case, from surrounding villages, some of which were many hours distant. The price is also augmented from 1 piastre per hour in the *Sultán's* territory to 2 piastres per hour, besides the inconvenience of a constant delay.

The outworks established in these passes by *Mohammed 'Alí* are much more important than is generally imagined, and instead of being mere lines of fortification, from which to advance upon a hostile country, their lasting and durable character, and the care, skill and expense bestowed on their construction, show that they are considered as a permanent line of frontier by those who ordered their erection. They are quite different from anything observable

* The "sweet waters" is merely a literal translation of the "*eaux douces*" or "*aque dolci*" of the Franks, established at Constantinople; the spring having no such name among the Turks.—ED.

in the Sultān's territory, even at Várnah or Silistria, and calculated to oppose an enemy more skilled in war than the Turks, being in point of execution quite equal to what is commonly met with in the North of France.

The plain, if it may be so called, which occupies the level summit between the waters of the Seihūn and the river of Tarsus, is about an English mile in width, and faces the magnetic point of N. 30° E., the approach to it being, as before said, up hill and through a broken and woody country. Throughout its width it is defended by eight different batteries of stone, each surrounded by a foss, and approached by a drawbridge with double gates instead of portcullis, leading into stone magazines of admirable construction, and in every point bomb-proof: some of these are connected, and the intervening foss is then casemated. To each battery a signal-staff is attached. The system adopted in their construction is that which I have always heard military men mention as now most approved of; that is to say, the rampart does not rise much above the soil, the greater part being sunk, and the ditches here have been dug in solid rock, which would render the cutting approaches a difficult and tedious undertaking. All the batteries command the same front, and are so placed as to intersect one another and not leave a sheltered spot, so that each battery must be silenced or taken in detail before the pass could be said to be gained. On the heights above to the E. there are also additional and extensive lines, beyond which, up to the summit of the mountain, there are towers of observation, and at the western extremity there is also a stone fort with barracks.

A ravine or low uncovered way in the centre of the plain leads to the place where the soldiers are in security, and where the Páshá has built himself a commodious house. Blacksmiths, carpenters and builders are also kept here upon a large scale, both for repairs and also to carry on the works, which are not yet completed. There are upwards of 100 guns distributed in the batteries. The amount of gunners and soldiers stationed here at present, and chiefly living in log-huts, is not however nearly sufficient for the defence of these extensive lines.

By observation with the boiling-point thermometer, the elevation of this culminating level was found to be about 3812 feet: we had sharp frosts both the nights that we spent here, and congratulated ourselves that no snow had yet fallen.

29th.—Our road now descended rapidly, with the tributaries of the river of Tarsus, into a pass in the direction of S. 20° W. A short way downwards we found a small battery; but it appears to be abandoned and does not come within the scope of the existing fortifications. Immediately beyond this is the most formidable part of the Gólek Bógház, where an ancient but illegible in-

scription has fallen, with the rock upon which it was cut, with its face downwards into the stream, and traces of ancient chisel-work attest the labour and trouble spent by former conquerors in opening a way through a narrow gorge, amidst lofty limestone precipices, which one would think a handful of men could convert into another Thermopylæ.

Below this pass vegetation becomes very luxuriant, and many changes in its character afford abundant evidence of a change in climate on the Cilician side of Taurus. The forests consist almost exclusively of pines of fine growth, but not so large as in the Ilik Tágh. Plane-trees grow by the water's edge, while the bottom of the valley is filled with a dense covering of evergreen oak, bay, laurel, quince, wild fig, wild vine and cedar. At the present moment the pink cyclamen and blue crocuses are in flower, but the myrtle and arbor Judæ (*Cercis siliquastrum*) do not appear till a little lower down, where the wild olive and jujube* (*Rhamnus jujuba*) become common, and the banks of rivulets are clothed with the bright red oleander.

On the right-hand or S. side of this pass are two bold rocky summits of limestone, towering, bare and precipitous, over the surrounding forest: the most western of these bears the ruins of a castle, with crumbling walls and round towers, said to be Genoese: immediately below this, and prettily embosomed among trees on the mountain side, is the village of Gólek, while in the valley beyond and further southward, is the village attached to Mohammed 'Alí's mines.

At a distance of 5 miles from the rocky gap we came to a khán where I had slept on a former occasion, and here the road divides itself into two branches; the one follows the course of the valley and its streams, and leads to Tarsus; the other turns over the hill-side in a direction of S. 25° E., and leads directly to Adanah. We followed the latter route, as I had been to Tarsus on a previous occasion; but I would recommend future travellers to go by Tarsus, as they will then get good quarters for the night, while on the Adanah road they have to go out of the way to find a village, and there is not above 2 hours' difference in the length of the roads.

Passing by a ruinous khán, near which is a large deposit of travertino from a rivulet which appears to be remarkably loaded with lime, we turned round the hill's side along a wood and by tombs, due E. to S. 80° E., till we entered a glen of limestone, 4 miles from the khán; and 2½ miles down the glen, which opens in a south-easterly direction, is a khán with one or two adjacent

* "Locust-tree," says Mr. Ainsworth—evidently by an oversight; as that tree is the *Ceratonia siliqua* or charob: in America *Gleditschia triacanthos*, *Robinia pseud-acacia*, are called "locust-tree."—Ed.

houses delightfully situated amidst abundant waters, surrounded by trees and sheltered by an overhanging cliff.

The road lay hence over the hill's side, leaving the glen and soon entering upon a hilly country of tertiary rocks; $1\frac{1}{2}$ mile from the last-mentioned khán there is a ruined castle or square beacon resembling in structure many of the more simple old Irish castles. There is another of a similar character upon a wooded and conical hill, 1 mile to the right. At this distance it appears like a round tower, but as we arrived early at our village, I had an opportunity of visiting it. Passing hence over some zoophytic limestone, and crossing a rivulet hid among oleanders, we came to a low country of rhomboidal sandstone, and turning off to the S. for about $1\frac{1}{2}$ mile, came to the same village where Colonel Chesney and a small party rested on a former occasion, and from whence the Colonel and myself, having gone out the ensuing morning to shoot partridges, lost the remainder of the party, and were obliged to find our way through the country of Bádinján O'ghlú to Sís, a journey which occupied us three days. This Bádinján O'ghlú is a Turkomán of great consideration, from the extent of his possessions and the number of his followers, in the fertile country of Cilicia. He is now, and has been for many years, the civil governor of Adanah, which is, however, always the residence of one or more of Mohammed 'Alí's generals.

The village at which we had now arrived, and the name of which, by some unfortunate quarrelling with the inhabitants, I failed to obtain, commands a very extensive and truly magnificent prospect. The greater part of Cilicia Campestris, with the towns of Tarsus and Adanah, are stretched at the foot of the hills, and the horizon is only bounded in the same direction by the shores of the Mediterranean; while Dúrdún Tágh, Amanus, and in front Jebel El-Núr, form the background to the E. It may be worth while to record one or two distant bearings from this point. Jebel Akra' (Mount Casius), S. 21° E.; Rás-el-Khanzír (Boar's Head), S. 27° E.; Beilán-defile, S. 47° E.; N. rock of Jebel El-Núr (see Beaufort's Karamania), S. 68° E.; N. end of Amanus (Darius' pass), S. 82° E.

30th.—We soon regained the great road to Adanah, which led along a valley from S. 15° to S. 20° E., and about 9 miles from the village came to another square ruinous castle, which, like the other two, evidently belonged to some European possessors of the rich and fertile plain of Adanah and Tarsus. We finally entered upon this plain at a short distance beyond the ruin; and as we are now leaving the Gólek Bógház, I may be allowed to remark, independently of its interesting geographical features previously noticed, that it would also be impossible for any traveller to ride through the whole length of this pass without being much struck

with its varied beauties; I can now compare it with four other long and tedious passes through Taurus, one of which is associated in my mind with only painful recollections, and although not so difficult, and perhaps surpassed in one single point by the Dúrdún Tách—where the road carried over the hill suddenly comes upon the Pyramus, rolling along a deep and dark chasm many hundred feet below, sharp precipices on all sides, and the shining peak of Dúrdún towering up to the skies above, with no visible road left for the astonished traveller;—rivalled also perhaps in the pass of Ak Tách by the beautiful valley of Erkenek;—still the Gólek Bógház contains by far the most numerous and varied points of bold and massive mountain scenery of any of the other passes. The superior height of the mountains, and the gigantic scale of the scenery of the Alps, does not allow of their being fairly compared with the chain of Taurus, in every respect inferior to them; but the able illustrator of the former (Mr. Brockedon) would also find much that would be highly worthy of his pencil in the Gólek Bógház. The differences of elevation between the two will no doubt be hereafter ascertained, but it will be more difficult to decide upon their peculiar claims to distinction. There are in the Gólek pass open spaces like the Vallais, but in the Vallais, on each side, are long continuous mountain ranges, which ultimately (especially to a pedestrian) become monotonous, while in the Gólek, mountain succeeds to mountain to the right and left, and vast semicircular precipices support broken glaciers piled one upon another in such profuse confusion and inimitable grandeur, that it is impossible to tear oneself from a scene which, wherever one turns, presents a new wonder. In its more rocky, craggy scenery, the Gólek is, as far as I have seen, quite unrivalled: such a succession of fallen masses, rocky projections and steep cliffs, will not admit of description; nor would they be represented by the Trosacles ten times magnified. I need not mention the vegetation or the habitations of men, as adding to the peculiarities of these scenes; but one thing is deserving of notice—the lammer-geyer or condor of the Alps is rarely seen by the traveller, except at heights at which its size and strength can only be conjectured; but the great bare-necked vulture, which represents in Taurus the condor of the Andes, and the lammer-geyer of the Alps, and is a larger bird than the latter, may be sometimes seen in dozens together, waiting till some surly shepherds' dogs have had their fill of a newly-killed animal, and they are never wanting amidst their favourite crags.

The features of the plain of Adanah are very uniform: here and there is an occasional tree, most generally the locust-tree (*Caratonia siliqua*), a peculiarity in which it differs from almost every other plain in Asia Minor or Syria. The thorny acacia,

the caper (*Capparis spinosa*), and two species of robinia, are its only shrubs; its flowering plants and grasses are numerous. Its more remarkable tenants are gazelles, foxes, hares, jerboas, ground squirrels, and large and small bustards. It is celebrated for its cultivation of cotton, and now produces much sugar-cane. There are also many date-trees, a further proof of the warmth of its climate.

The learned President of the Royal Geographical Society, in his Anniversary Address for 1838, has very truly remarked of the Cilician, Amanian, and Syrian passes, that they included "a line of march which, from its being so frequently mentioned by historians as that which was preferred to all others in the communication between the eastern and western parts of the continent, must have possessed advantages in a military and commercial point of view which have not yet been sufficiently developed, but resulting as well from the nature of the countries to be traversed as from the facility of commanding supplies for the support of armies." Without proposing to myself to unfold even the majority of these peculiarities, I may perhaps be allowed to point out what appeared to me as leading features in the case. The first of these is that, from the sea-shore to the northern termination of 'Alí Tágh, except some foot-paths and an occasional bridle-road, there are very few feasible passes through Taurus. The first of these—the maritime pass—to the W. of Sóláh, afterwards Pompeiopolis, has been put into a state of defence by Ibráhim Páshá, but I understand that it is difficult of access. There are other foot and summer roads between this and Ereglí, from which latter place is a summer bridle-road across Bulghár Tágh. This is the same as that noticed in the Itinerary to Mecca as the pass of "Karghah Kesmez" (impassable by crows). Another bridle-road to Tarsus takes its departure from where I before noticed is a khán; this was apparently much in use by the ancients. On one part of its course are a number of sepulchral grottoes, on another an inscription, and nearer to Tarsus the remains of an olden road, a sarcophagus and arch, the probable history of which is contained in Rennell's "Western Asia;" but this road continues for a long while in the hills, and is in many parts difficult. I speak here from personal examination. It is not improbable that it was by this road that Cyrus sent the Cilician queen, under guard of Menon, as the most direct to Tarsus. It appears also to have been the road followed by a part of Alexander's army, and is the same as the "It-gelmez" (inaccessible to dogs) of the Mecca Itinerary. Of the passes through Taurus N. of Gólek Bógház, I know little; but in our journey through the Bádinján O'ghlú district, Colonel Chesney and myself heard of none till we came to Sís. Indeed, the reasons for the preference given by

the Greeks, Persians, Romans, Turks and Crusaders, to the same pass may be inferred from the words of Strabo (lib. xii. p. 370), when he says, "*Tauro ad Cilicias portas: juxta quas facillimi ejus sunt omnibusque communissimi in Ciliciam et Syriam transitus.*"

After the necessities of the case, come "the facilities for affording supplies;" now these apparently always were, and still are, of the first order in "*Cilicia Campestris.*" Adanah has every winter a garrison equalling that of Aleppo, and is considered the third town in Syria. Tarsus, its port, is the place of residence of a French consul and English vice-consul. The last agent, Mr. Jones, loaded as many as twelve vessels annually from this port. The advantages were still greater when the populous Anazarba, afterwards Cæsarea, communicated wealth and productiveness to the centre of a now neglected district, and Mopsuestia was in its glory. When Mallus had fallen, a Christian monastery still rose upon its ruins. Sis, in the same plain, covered with castles (Túm, Seliyah, Meráneh), is still the seat of an Armenian patriarch. From Issus by Baïæ to the Syrian gates is a garden of oranges and myrtles. Cicero, in his *Epistles* (and I regret not to have the passage at command), particularly notices the resources of Cilicia; and Albertus Aquensis, according to Cellarius (lib. iii. cap. vi. p. 255), talks of 3000 ships sailing from the port of Tarsus at once. Of all the sites between the pass of Taurus and that of Syria, Iskenderún, or Alexandretta, is the only one which may be said to have attained greater importance in modern times than it possessed at a more remote epoch.

Dec. 1st.—To return to our journey: we found at Adanah Ahmed Páshá and Khurshíd Páshá, who received us very kindly; the first speaks French, and was well known to us previously. In this hot plain, the soldiers were in their summer dresses, the thermometer marking at midday $22\frac{1}{2}$ cent. ($72\frac{1}{2}$ Fahr.), and in the sun, without blackening the bulb, 47° cent. (116° Fahr.) The castle, which was being destroyed when last here, remains in pretty nearly the same condition. An omission of that journey was now filled up—the river of the Seihún, at the bridge, is 325 feet in width.

Adanah, it may be remarked, although not so distinguished in the annals of history as Tarsus, was still in ancient times a town of much importance. It is noticed by Ptolemy and Pliny. Stephanus Byzank says, "*Ab Adano, Cœli et Terræ filio, conditam esse.*" According to Dio Cassius, its inhabitants used to wage war with the people of Tarsus. The progress of the Crusaders, it will also be remembered, was marked by a sad quarrel at this place. The Bishop of Adanah had, according to the Ecclesiastical Notices quoted by Cellarius, a seat in the Councils of Nicæa and Chalcedon.

3rd.—Travelled over the plain to Misis. At this moment there were flocks of many thousands of small bustards on the plain. Misis is sadly fallen since my last visit, and contains scarcely thirty families. The Pyramus is perfectly navigable, and as well adapted to small steamers as far as this place and 'Ainzarbah as the Seihún is to Adanah; and I have often thought what a happy scene this most favoured vale of Cilicia would be in the hands of an industrious people, like the people of the United States. The numerous notices of Mopsuestia as well as its admirable position and extensive ruins, attest its former importance, which render its present condition so much to be regretted. In a former memoir, I compared the distances given by Xenophon and the Itineraries to Mecca and Jerusalem, with those obtained by the Surveys of the officers of the Euphrates-Expedition, and I have collected the various orthographies of this interesting site, but do not give them for fear of being tedious. For its importance, as further illustrating the peculiarities of this country, I may be allowed to quote Procopius: "Eam adluit amnis Pyramus, singulare urbi ornamentum ferens;" and an inscription given by Cellarius after Gruter, p. 255, which, bearing the title of Antoninus Pius, says, "Evergetæ ac servatoris Hadrianae Mopsuestiæ Ciliciæ, sacrae, liberae et Asyli, suis legibus viventis, et fœderatæ ac sociæ Romanorum."

4th.—We had a continued and heavy rain on our journey to-day. I was aware of the few comforts to be obtained at the miserable village of Kúrd Kúlák (wolf's ear), but scarcely anticipated the misfortune of being detained a day there, which, however, was rendered actually necessary by the bad weather. Thursday, the 6th, we passed the Amanian gates (Demir Kapú) and the ruins of Castabalum, and kept along the sea-coast, from which the ruins of Issus were scarcely visible, and hence, no doubt, the reason of their remaining unnoticed till the time of the Euphrates-Expedition. This line of road enabled me, however, to observe that the Pinarus, after losing itself in an extensive marsh, empties itself into the sea by a variety of small streamlets, which has occasioned much discordancy among travellers. Since the insurrection at the time of the campaign of 1839, Ibráhim Páshá has done his best to open a market in the long-deserted but beautiful bázár of Bayás, certainly a highly meritorious as well as politic measure. The Páshá is actively engaged in transporting wood from Amanus to Egypt. To accomplish this, he gives a pair of oxen to any family, more particularly preferring Christians from their steadiness, and out of the small allowance made to them for work, they have at the end of a year, if possible, to pay for the oxen.

8th.—The luggage being detained for want of horses, we went

on a-head to the house of Mr. Hayes, H.B.M., Vice-Consul at Iskenderin. We found this little place much improved. Mr. Hayes had built himself a commodious English-looking house; the Austrian agent occupied the old consular establishment, and Ibrâhîm Pâshâ had also built granaries for rice and corn, &c. coming from Egypt. There is no doubt but that if this place is continued in the line of the Austrian steam-packets that it will very rapidly rise in importance. As it is, forty vessels, on an average, come every year to this port from Great Britain, and from fifteen to twenty from other countries. The day after our arrival, it blew one of those tremendous gales from the mountains which are so much spoken of as being frequent here; and in the evening we were only able to make our way to Beilân, where Mr. Hayes has a small summer residence, and to which we were made kindly welcome.

It is noticed by Strabo and other writers that Philotas led Alexander's horse by the Campus Alëius. Now by proceeding from Mallos to that plain, they would have crossed the Pyramus below Mopsuestia, but have been equally necessitated to pass the Ananian gates, between which and the sea is a basaltic knoll, rude although not precipitous, on the shore. I examined this particularly with the view to the possibility of the army, or any part of it, having been able to come along the shore. Hence it is quite correct to say, "*Post Mallum, Ægæ sunt, oppidum cum statione, deinde Amanides portæ, cum statione.*" When Quintus Curtius (lib. iii. chap. 4) says, "*tres asperos aditus et perangustos esse, quorum uno in Ciliciam intrandum sit,*" he means evidently the Gólek Bógház. Cellarius, I find, after reviewing the various testimonies, is led away by Polybius, who again founds his descriptions on the report of Callisthenes, to consider the Amanian gates of Strabo, Ptolemy, Arrian, and Quintus Curtius, as the pass over Amanus, by which Darius got to the rear of Alexander's army. Now Cellarius himself admits that Arrian in his account says, "*κατὰ sit juxta prope,*" or, give the whole passage, "*Darius superato monte, qui prope Pylas Amanicas est, Isson versus movit, Alexandrum imprudens a tergo relinquens.*" Now Polybius's language, as opposed to this correct and beautiful description, is only guess-work. "*Jam Alexander, inquit, fauces et quas Ciliciæ Pylas vocant, superaverat: Darius vero per Amanidas Pylas ducto agmine in Ciliciam cum copiis pervenit.*" In the original it is, *Δαρεῖον δὲ χρησάμενον τῇ διὰ τῶν Ἀμανίδων λεγομένων Πυλῶν πορείᾳ*, etc., which conveys exactly the same impression.

Upon this occasion, without actually visiting the district, I looked carefully at the mountains, to see what opposition they would present beyond Issus to the passage of Darius' troops, and

they appeared to present several points, where few difficulties would be presented to an army without cannon. Cicero evidently led his troops into the heart of Amanus; for in his *Epist. xx. lib. v. ad Attic.*, he says he inhabited for several days the castle which Alexander had near Issus to defend himself against Darius. "Ibi dies quinque morati, direpto et vastato Amano, inde discessimus." In two epistles to M. Cælius he narrates the same thing. This castle, built by Alexander, has nevertheless been confounded with Issus, which as 'Issos' existed as a great and opulent city in the time of Cyrus. See *Anabasis*, pp. 147-149.

Whether Issus and Nicopolis were two different towns, as Strabo and Ptolemy assert, or the same as is stated by Stephanus, I have no new information; but the discovery of only one ruined city on the plain of Issus would appear to confirm the latter opinion. Probably a great many contradictory opinions may be found among historians regarding the Cilician, Amanian, and Syrian gates, and it can only be hoped that a correct geography of the country will always be referred to by future commentators.

9th.—A melancholy scene presented itself to us on our arrival at Antioch, in the actual decimation of the troops then quartered there: 700 men were in the hospitals, one of which is Ibráhím Páshá's late Palace (which he is said to have sold to Mohámméd 'Alí), and the average mortality was from fifteen to twenty per day. Upon inquiry of the medical officers, they attributed it to the common fever of the country; but upon visiting the hospitals I found the symptoms and course of the disease to present quite a different face. The attacks were sudden, accompanied by giddiness and great prostration of strength: this was soon followed by a comatose state; the tongue was paralysed, and the pupil fixed; and if powerful remedies were not early administered, the attacks proved fatal in from four to eight or twelve hours. The attention of the medical officers being roused to the true nature of the malady, inquiries were immediately instituted, most minutely, into the food and drink of these poor men; nor was it long before the corn was ascertained to be largely adulterated with the seed of the *lolium temulentum*,* well known in the East, and even noticed in Scripture, for its very fatal effects. Ibráhím Páshá sent orders to have the afflicted regiment removed to Aleppo, and for a time to be allowed perfect rest, in order to recover its strength.

The barracks built by this Páshá, from the old walls of Antioch, are still in an incomplete state. The quantity of cultivation around the town has much increased; but the prosperity within has, if anything, diminished. The old governor still held his situation,

* Zizán in Arabic; Zizania of the Greeks.—Ed.

but complained bitterly of the poverty of the country. Although exceedingly anxious to serve us, we were as usual detained for want of horses.

12th.—Rode in the afternoon to Jisr Hadid (Iron Bridge). There is a strip of land on the banks of the Orontes, which is devoted to the cultivation of the culinary vegetables peculiar to Turkey, *bádinján* (egg-plant), *bámiyah* (*Hibiscus esculentus*), and *capsicum*. Ibráhím Páshá has purchased this for sixty purses, or 300*l.*, and farmed it out. It probably yields more than 200*l.* a-year to its proprietor.

13th.—From Jisr Hadid to Herem,* in a direction by a single bearing, S. 65° E., but deviously by the road, is the southerly prolongation of the plain of 'Umḵ. Herem is a remarkable place, and evidently the site of a former town. It is situated at the foot of the limestone rocks of Amgólí Tágh, noticed by Mr. Thomson, from which an abundant spring issues, and is remarkable for its large mound of ruins, which rises from a still more extensive platform beneath. The situation of Gindarus, the "Acropolis Cyrrhesticæ" of Strabo (lib. xvi. p. 517), also called "Arx Cyrrhesticæ," and renowned as a resort of robbers, is well known as being now the tepeh at present called Jindaris, or Chindaris.† By most writers it is placed in Cyrrhestica; but by Ptolemy in Seleucis. Be this as it may, between it and Antioch was Gephyra (Bridge), according to the Pentengerian tables 22 miles M.P. from Antioch, and at a similar distance from the "Gendarum" of the tables. There are no ruins upon the plain of 'Umḵ at those distances; and no doubt the old road, like the modern one, whether bound from Antioch to Aleppo, or from Antioch to Gindarus, was forced to take the same line as in the present day, which will alone give the quantities required by the tables, and which at the same time demonstrates, almost beyond a doubt, the identity of Herem and Gephyra.

The Amgólí Tágh, with its culminating point, called from a tomb upon its summit, Sheikh el Barakát, but better known to the Aleppines as Mount St. Simeon, is remarkable for the great number of villages, monasteries, and other sacred ruins, profusely scattered on its most barren rocks, or in its stony and almost inaccessible valleys. These edifices, belonging to the early ages of Christianity, are remarkable also for the architectural skill with which they are constructed, and which, in massive simplicity and correctness of style, far exceed any modern buildings in the same country. Colonel Chesney has in his possession drawings illustrative of their peculiar features, rendered still more interesting by

* More correctly Hárím, pronounced Hérem.—Ed.

† The Arabs have no *ch*; but the Turks, Kurds, and Persians have that sound; therefore this name would be pronounced Chindaris by the latter, but Jindaris by the Arabs.—Ed.

the well-known Saint Simeon Stylites, who, according to tradition, performed his extraordinary penance amidst these rocks.

Scarcely 3 miles from Herem, the first mines belonging to the period now mentioned are met with. They are upon the banks of a rivulet, over which was carried a goodly bridge. It was a large village, apparently with two churches: 2 miles from thence are the ruins of a church, and adjacent to it a lid of a sarcophagus, in the Byzantine style. We had remarked at Tium the body of the sarcophagus, formed of laminar rock, *in situ*. Here a tomb was also excavated in the solid rock, the lid alone being moveable. This is, however, very different from the real Byzantine tombs at 'Ainzarbeh, or the splendidly ornamented sarcophagus at Pompeiopolis.

A little beyond these ruins we began to ascend the hills. The tall houses of a former population stood prominent on the top of the hill to the right, while in our immediate vicinity were ruins apparently of a different age. These now presented only a circular mound, with successive terraces of small stones, irregularly piled, so as to form a fortification similar to those described as made by the ancient Britons. We found another of these mounds commanding a narrow pass, previous to our arrival on the plain of Dáná. They appear to be of great antiquity, and were undoubtedly meant for the defence of the road to Chalcidene and Chalybone, and which appears to have been carried along its present line long before the monks hemmed in the hewn pathway, as they appear in some places to have done, with so many begging-boxes.

Curving round this antique mound, and after a short ascent, an interesting scene presents itself,—a deep hollow in the rocks, at the bottom of which are the tall ruins of an abbey, while high up, on the opposite acclivities, is a large and inhabited cavern. Hewn reservoirs for water, of large dimensions, and having staircases to the bottom, occur occasionally by the road-side. They certainly indicate a most patient and laborious industry on the part of the tenants of these stony wildernesses. Passing by a ruined house of the same period, the road enters a more level valley, having a general direction of S. 55° E., and only from 200 to 300 yards in width: the remains of the ancient road are quite evident all along the centre of the valley; and near half way, there is now, and was formerly, a cross-road, which was indicated by a huge stone with an effaced inscription, which now lies in a falling condition. At the end of this vale are more ecclesiastical ruins, adorned with Ionic columns; and here the old road was hewn out of the rock: a little beyond, two rows of hermits' cells occupy both sides of the road; and passing these, the traveller enters upon the remarkable plain of Dáná, which extends to the

foot of Mount Saint Simeon on one side, and S. 35° W. from Dáná to beyond the visible horizon.

Although this plain, which is very level, is badly supplied with water, still it ever has been, and is still, remarkable for its fertility. Even in the hands of the poor peasantry that have outlived conscriptions, taxations, and levies innumerable, it still presents a most promising aspect. The chief objects of cultivation are maize, cotton, bádinján, and bámiyah. The land not being divided into small compartments, as with us, these are planted out in lines of exceeding length, which are skilfully straight and regular; and I have seen as good work done here as at a prize ploughing-match in Picardy. Dáná, which is a modern village, upon an antique site, and can show, besides two ruined churches, a very pretty little circular temple, is situated in nearly the middle of the plain; but the ruined villages of the former Christian cultivators of the soil are placed all round the plain, at its edges, and upon the usual rocks. I took bearings of no less than nine villages so circumstanced; and there are still more, as they are frequently hidden in recesses in the hills. Ibráhim Páshá lately sent some of the farmers of this plain to colonise the plain of 'Umķ, and, if possible, redeem cultivable portions of that neglected country.

14th.—Nearly 3 miles from Dáná we left the plain, and found ourselves once more upon a stony road, over low hills, or rather an undulating country of hard limestone rock, with a nearly horizontal stratification. The only possible way of making a road across this country, available for draught, would be by macadamization, and the expense would be very great, whereas the road from the Euphrates by A'záz might easily be put in order. I understand, however, that there is also a good line to the S. There were numerous ruins to our right; and we crossed a valley with an old khán and another ruined village, and then ascended to Injír Kōī (fig-tree village), where that fruit tree is cultivated in little holes in the rocks, or by piling up stones.

Passing along a rocky upland, about 2 miles from Injír Kōī, we came to more ruins, besides which others presented themselves to our view on the adjacent hills or their declivities. The road did not alter its character much until long after seeing the lofty battlements of its now ruinous castle—the great multitude of houses, churches, and minarets that belong to the famed Aleppo opened all at once upon our vision from the brow of an adjacent hill. Here, for the first time, igneous rocks succeed in the valley of the Koweik (Chalus) to the long-continued limestone, and a contrasted configuration, and a soil available to the purposes of humanity, spring from this change in the structure of the earth's crust.

15th.—We were hospitably received in the commercial house of Mr. Kilbee, but afterwards removed to that of Acting-Consul F. Werry, Esq., who did everything to assist us in recovering some of our losses at Nizib. Suleimán Páshá (Selves) had been very polite upon the occasion, and particularly requested the Europeans in the service of his highness the Páshá to give up to the British consul all papers, instruments, or books of a scientific nature which might have fallen into their possession. Mr. Werry had then recovered a few papers, chiefly duplicate copies of maps and astronomical calculations; but although we traced and heard of the local distribution of some of our instruments, we were unsuccessful, after a long delay, in obtaining them even by the offer of repayment.

There are several British mercantile houses, and much competition in the market. Goods are consequently given with little or no security, and great losses are thus sustained. It is indeed no uncommon thing in Aleppo for a native merchant or trader to obtain a certain quantity of goods on credit, and to remit the "groups" directly to England for new goods, instead of paying his original creditor. A considerable loss has lately been sustained by several houses, from an attempt made to introduce into the British market the Valonía and galls of Amanus, which proved a failure, perhaps from mere opposition. In what can these products, so abundant in Amanus, differ from the similar products of Kurdistan? Perhaps it may be answered upon the same principle as the various produce of different vineyards; but the oak, especially the Valonía,* which is an evergreen, while the galls of commerce are furnished by deciduous species, is an obdurate and stubborn plant, not easily affected by slight causes. The commerce that is not British is of a very trifling kind, and seldom embraces the wide field of manufactures. It is much to be regretted that, since the occupation of Bireh by the Egyptian forces, the Páshá has thought proper to put an additional tax upon each camel-load passing that great thoroughfare.

Jan. 5th, 1840.—We had several falls of snow during our stay at Aleppo; but, contrary to our hope, the cold did not last. Having set out in a fine warm afternoon, we only reached the district of Hailán, where we had much difficulty in finding a lodging: most of the houses being occupied by soldiers, we were hurried from one village to another, till we at last settled at Meheritei. This word, as Mr. Rassám remarked, is Syriac, and signifies "the two brothers:" the name of the district, Hailán, signifies "powerful," in that language. This circumstance will assist, probably, in throwing light upon the remarkable ruins at 'Ak Deyavin and Jinder Abá, which probably belonged to old Syrian families.

* *Quercus Ægilops*.—Ed.

6th.—What was frozen during the night was generally thawed by the sun during the day. We had, however, a cold piercing wind in our faces, which compelled us to dismount and walk on at a quick pace. We left a lake to our left, then crossed the Koweik (Chalus) flowing S. E., and in order to connect this country with A'záz, our former line, we went up the banks of the river, by a small village and Tell, from which we enjoyed a good prospect of A'záz, and its Tell and adjacent hills and the more distant Killis. We then turned back to the S. E. to 'Ak Deyavín, whither our baggage had gone direct. In attempting to cross the country our horses got so deep into the mire, that at one time we were almost in despair of being able either to proceed or to return. 'Ak Deyavín is remarkable for its Tell; (and in this country almost every village has its mound—Tell in Arabic, Tepeh in Turkish;) surrounded by ruinous walls built of gigantic stones, which support the declivities of the hill, and show that it is certainly a work of art. Tell Báshir, in this district, as is well known, was the site of a castle at the time when the crusaders carried their arms by Bíreh to Edessa. That some of these mounds are natural there can be no doubt; as some, also, are in part natural, and in part artificial.

7th.—We passed by Jinder Abá, where there is a Tell of trap boulders surrounded by a wall, and where the A'záz and the Aleppo roads join, to the village of Hálá O'ghlú—a station well known to Mr. Rassám and myself. The next day, *January 8th*, crossing the Sájúr, we quartered ourselves at Ékishá, a small village; whence on the ensuing day, *January 9th*, we reached Bíreh or Bíreh-jík, after a journey of 6 hours. For the last 2 days we had had much rain, and our old enemy ague had assailed both Mr. Rassám and myself. I have nothing further to remark upon what has been previously published respecting the geology of Northern Syria, than that the succession of formations at Aleppo, on the cliffs overhanging the river Koweik (Chalus) to the W., are from above below—

1. Hard, coarse, cavernous limestone, with ostracites, conides, pectinides, turritellæ, a donax and a venus. This is the formation which appears to constitute almost all the Emgólí Tágh, and which has been designated as a conide limestone; but as it here lies upon plastic clay, it probably represents the "calcaire grossier" of the Paris basin.
2. Greyish-green rock, earthy and soft; sometimes a greenish clay not fossiliferous, with veins of aluminite and talc spar.
3. Red and green thermantides.
4. Blackish-grey spilites (a coarse paste, with nodules of calcareous spar).
Spilites and basanites.

These formations are succeeded to the E. by irregularly fissile chalk, which there contains no fossils, but occasionally flints. At Jinder Abá a rather extensive district of basanite commences, succeeding the hills of yellow fissile chalk to the N., and extending far away to the S.: to the E. it is itself succeeded by yellow chalk within about $3\frac{1}{2}$ miles from the Sájúr (in which the conglomerates are probably a local formation), while the trap rocks form cliffs which stretch away to the S.E., above the level of the surrounding country. The diagonal line followed from Aleppo to Bíreh enables me to make these little additions to the geology of this tract, and serves further to illustrate the frequent occurrence in these countries of igneous rocks between the chalk and supra-cretaceous deposits. Bíreh was occupied by the troops of Mohammed 'Ali, who were for the most part quartered in the mosques, while the fine old castle, a noble monument of the Macedonians, Saracens, and Crusaders, was now abandoned. The few old guns and the little ammunition, which it could boast of, had been removed to Aleppo, but many of the former were broken up on the road.

While we were at Bíreh the weather cleared up and was followed by a sharp frost, which materially improved the health of the party, so that we were enabled to continue our journey, (Sunday, *January 11th*.) when we travelled 10 hours to Chármelik, a village with huts like bee-hives, so common in the plains of Harrán and Serúj, where wood being very scarce, flat roofs are superseded by ingeniously contrived spherical or dome-like coverings of sun-dried bricks. There are some villages thus constructed in Northern Syria, and they are always the dread of travellers, as they abound more in vermin than any others. There is an ancient Tell at Chármelik, besides a modern khán; and this place has been marked in the maps as the site of Anthesmusia, the capital of the district so named. That site, however, is far from being satisfactorily determined.

12th.—This day we reached U'rfah, where we found Mohammed, commonly called Ma'jún Beg, commander of the irregular troops attached to the Egyptian army in Syria, stationed with three regiments of infantry, besides a great number of irregular cavalry, who were continually employed in foraging parties in the plains of Mesopotamia—Súverek on the one side, and Rás el 'Ain on the other, being their points of rendezvous. The time of the year, at which the battle of Nizib took place, brought the Egyptians in; for the rice-harvest of the plain of Serúj (Batnae), and of Harrán (Charran), is by far the most productive in all Syria or Mesopotamia. On the plain of Serúj alone there are upwards of twenty villages whose inhabitants are employed in this branch of husbandry. The military are, as usual, distributed in the

mosques; and one of the prettiest of these, that of Ibráhím-el-Khalíl, is also sacrificed; but the sacred fish are allowed to remain unmolested. Ibráhím Páshá appears by the system now generally pursued, to wish gradually to overthrow certain Moḥammedan prejudices at their very foundation. The large barrack of the Turks alone is in part put into requisition; and the castle is shut up; so that I could not copy a Syriac inscription which I heard of in my former journey. The traveller will find in the valley N. of the castle two ponds, both full of sacred fish; that near the mosque is artificial, that near the castle, natural; and at its head there are several abundant springs of water, which in cold weather feels quite warm to the hand. Three of these, carefully examined, gave a similar and uniform result of $+ 21^{\circ}$ centigrade ($69\frac{1}{2}^{\circ}$ Fahr.); the atmosphere being at the time $+ 4^{\circ}$ centigrade ($39\frac{1}{2}^{\circ}$ Fahr.).*

The rivulet which flows past U'rfah to the E. and N.E. is called *Ḳarā Ḳóyí*; but I fear my authorities were ignorant persons. Procopius calls it *Scirto*, and D'Anville *Daisan*. The latter has got, from some unknown source, most exaggerated accounts of its occasional floods: perhaps they are derived from some notice of a spring about a mile W. of the town, which is said sometimes to overflow with a roaring noise, in which the good priests of U'rfah say the miraculous handkerchief, having the impression of our Saviour's face, was lost.

Ma'jún Beg was extremely civil; wished us, while at U'rfah, to live at his expense; and, representing in a strong light the dangers of the road that lay before us, was anxious for our taking a guard of irregular horse; but at length consented to our starting with one horseman and a *cháúsh*, or officer of irregulars, by name *Háji 'Alí*, a bedwín from Tunis, of great activity of body, and well known by his fearlessness. Besides this, we had our *tátár*, a useless old man, two servants, and two *súrujís*. This made up a goodly party; but it did not take away all anxious curiosity about the results of our journey across the "Mesopotamia Mediterranea" of Cellarius, where the roving tribes, always uncertain in their allegiance, did not now know under whose dominion they lived, while they were daily exasperated to acts of

* U'rfah, according to a notice in Bell's Geography, is in $37^{\circ} 10'$ N. latitude. The mean temperature of such a parallel, according to De Humboldt, would be about 64° Fahr. At Mósul, in a lower latitude and less exposed situation, the spring of Dám-lamahgáh, "Thisbe's well," presents, from Mr. Rich's observations compared with my own, a pretty constant temperature of 66° Fahr. So that the Aín-el-Zilghah may be decidedly considered as having a temperature exceeding the annual temperature at U'rfah. Their preserving this high temperature during winter prevents the ponds which they supply being frozen, and is, as we first observed at the spring in Ishik-Tágh, in Anatolia, highly favourable to the propagation of fish.

robbery by the wholesale plunder that was committed upon them by those who called themselves their rulers.

15th.—We were only enabled, as at Aleppo, to set off in the evening; but in this country “the start” is everything; and, passing Gúrmish, a small village of Christians, we crossed a large rivulet, flowing from a glen with a village to the N., where hills of chalk abounding in flints succeeded to a district of basanite. We travelled over these roads for three hours to Kará Tepeh, a hill with a village of from thirteen to fourteen houses and a few tents. A little beyond it is the Jáláb,* here 30 feet wide by $1\frac{1}{2}$ to 2 deep. According to Procopius, as quoted by D’Anville, there was a castle called Kalaba, where the Jáláb leaves the foot of the hills; and this would correspond with the position of the mound now called Kará Tepeh in a district where the Turkish language is now seldom spoken.

16th.—Our road lay over an undulating country of horizontal limestone of the chalk formation, and we travelled in a circuitous manner, always following the valleys, which had an uncommonly deserted appearance. We fell in, however, after 2 hours’ journey, with some tents, where we sought to take a new guide and leave the one we had brought from Kará Tepeh to return, but our Bedwíns had much to do, and plenty of blows were distributed before the stubborn Kurds could be got to move. A little beyond this place, we came upon a more open valley, towards the head of which was a large encampment: we however turned up a valley to the right: it was snowing so densely and blowing so hard, that we could scarcely see or hear one another: we had all been long anxious for a halting-place, when coming up a hill more bleak and exposed than before, our guide made a halt: he no longer knew his way, and the village he was leading us to was gone. Nothing that I could say could ward off the blows he got from the Bedwíns: there was however only one course to pursue, which was to return 2 wearisome hours to the encampment: our jaded baggage-horses tumbled at every other step; but Hájí ‘Alí, with his yellow boots, was off and on his horse like a mouse, and one of our servants kept up his courage and gave quick assistance. The evening found us endeavouring to make a fire of a little damp grass; but it was of no avail, and sleep we must in our well-drenched clothes.

17th.—There was another disturbance this morning about guides. Hájí ‘Alí was dealing about blows with a heavy stick, his turban having fallen and left his head bare, while his friend was using the butt-end of his gun. Several Kurd horsemen, with an

* Jáláb, anciently pronounced Gáláb, is identical with Kalaba.—Ed.

expression of countenance that was anything but friendly, had ridden into the tent, and the Tátár was eyeing them askance, pretending to be engaged in saddling his horse. As I had previously balanced means, and knew that we could beat the whole encampment by the superiority of our arms and men, I watched the result without interfering. The Páshá's authority was ultimately recognised, and a proper mounted guide was given to us: he did not, however, prove of much use: we retraced our steps to the place whence we set out yesterday evening, and then the snow was so deep over the adjoining upland, that no trace of a path was to be found: the guide and Hájí 'Alí were active in ascending hills wherever a glance could be obtained of a new country. At length, after a tedious ride, we reached an abandoned village, from whence we obtained a view of the fertile district of Mízár, where trap-rocks, succeeding to the limestone, a sort of cultivated oasis occurs, dispersed about which are many villages of tents; in one of which, called Chabákchú,* we found another fire made of grass, and space enough for a nap. The igneous rocks of the Mízár district extend to the Karájah Tágh, distant N.E. about 10 miles: they also occur at intervals, and occupy by far the greater part of Northern Mesopotamia, from hence to the foot of Masius near Márdín.

18th.—We travelled over a cultivated plain, covered however with large stones, 2 miles to Zibillí† village and tell: here we changed our guide, and then pursued our journey generally in a direction from S.E. to E., passing several villages and tells, among which was one called Tell Gauran (Gabr's hill), with a ruin on its summit, said to be that of a Christian church, till we came to Tell Ja'fer, where it was settled that we should pass the night: some parts of the road had been very stony and others very muddy: it was like the country near Jezíreh, and is very bad in winter: it is worthy of mention, that although snow from 6 inches to 1 foot deep covered the limestone district, the moment we came upon the basalt and basanite, none was to be seen. The outline of the country is also quite altered, and an infinite variety of low rounded hills with grassy valleys intervening, is succeeded by long sweeps of cultivated or barren soil, occasional spots being covered for miles with nothing but loose stones. This district is traversed by many rivulets, chiefly in beds having rocky sides: villages inhabited by Millis Kurds (not Turkománs, as stated in some maps) with their accompanying tells, are to be seen in every direction. To the S.E. the plain is bounded by the hills of Sinjár; to the S.W. by those of 'Abd al 'Azíz, and between the two is the very remarkable hill called Tell Kaukab (Star hill).

* Chibúkchí?—ED.

† Dung-ville.—ED.

Nearer to the N.W. are the hills just traversed, for which I could find no name. To the N.E. *Ḳarājah Tāgh*, and beyond it the rocky and snow-clad summit of *Masius*, were now distinctly visible. *Ḳarājah Tāgh* is a rocky range of conical summits of trap-rocks, running nearly N. and S. between the districts of *Súverek* and *Diyár Bekr*. Mount *Masius* commences at the flourishing and wooded village of *Derrik*, from which it first takes its name, and consists of a range of limestone hills, which terminates rather abruptly in the plain. On one of the boldest of these rocks *Márdín* is singularly perched, while beyond it, the precipices dwindle away, and are occupied by the monasteries attached to *Deïri Za'ferán*. The prolongation of these hills to the N.E. is the celebrated *Jebel Túr*. From the *Deïri Za'ferán*, low hills advance to the S., and bear the ruins of *Dará*: they then sweep round to the E. opposite *Nisibín*. The waters of the *Jakhjakhah* (*Mygdonius*) make their way between two Christian villages, and the hills become more lofty (the *Ḳarājah Tāgh* of Mr. Forbes), bearing upon their declivities the castle of *Khalifah* (once a notorious robber of these districts), which is visible from the road to either *Jezireh* or *Mōsul*, and gives its name to these mountains. Not far from this the limestone is succeeded by trap rock, which forms the conical hill of *Ba'arem*, and a low range which descends down to *Jezireh ibn 'Omar*; a little to the N. of which, this last prolongation of *Masius* is only separated by the *Tigris* from the bold precipices of *Jebel Júdí*, which there form a pass well known since the days of *Xenophon*.

10th.—We went a little out of our road, although the anxiety of our guard was increasing as we approached within sight of the castle of *Márdín*, to visit the ruins of a city called by the natives *Kóhrasár* or *Koh Hīšár** (high head or castle mount). We found the ruins to be more extensive and remarkable than we had expected, and regretted that circumstances did not allow of any delay for measurement and minute examination. The walls of the city were built of good square hewn stones (basalt), like those of *Diyár-Bekr*, and were defended by square and round towers. The towers on the N. side preserve about half their original height, but on the other sides, are more ruinous: the space included within the walls is nearly square, and the extent of any one of the sides from 600 to 700 yards: the whole of this space is filled up with ruins of houses, except towards the E., where there is a large mound, apparently once a building of some extent. The houses were constructed of hewn stone with semi-circular arches and intervening masonry: many of the arches are still standing. We found no inscriptions nor Babylonian

* This name is probably incorrect.—Ed.

bricks, but by no means explored all the ruins which cover about a mile of ground in and outside of the walls. By far the most remarkable remnant connected with the ancient place is the burial-ground without the walls, which with respect to its construction and arrangement, is the most perfect necropolis that I have ever seen: each tomb was a separate and distinct mausoleum, built of massive hewn stones, forming a chamber with three arcades, one fronting the entrance and one on each side: each of these arcades was divided into two parts, by a huge single slab of basalt, so as to contain one coffin above and one below, or six in the same sepulchre. The door itself consisted of another heavy mass of basalt, swung upon hinges cut out of the rock, and received into circular holes in the building.* Although many of them were quite perfect, it required a man's strength to move them; and as a portal was thus left to the houses of the dead, it appears as if, as in Egypt, the inhabitants had been in the practice of visiting them; and in the interior there was space for two or three persons to walk about in: these tombs were in part underground, laid out in regular rows, of which there were about twenty, each containing nearly 100 tombs: amidst these are the more lofty ruins apparently of churches, not unlike, as are also the houses, those at Garsaura: one of these was tolerably perfect; of another the walls only rose like pillars from the plain.

It is impossible, from what we could observe, to form any satisfactory conjectures as to the antiquity of this city; but the crosses sculptured upon the portals of the tombs and the character of the churches, show that it belonged to the Lower Empire, and to a Christian community.

We had a long journey this day, passing several tells that had lost their accompanying villages, from the ruins of which we now only disturbed some grunting boars, then lost our way in a wide grassy plain, and soon afterwards our guide, who turned off, or made off to the left, while Hāji 'Alī was reconnoitring to the right; but we ultimately reached some Kurd tents, where, notwithstanding their protestations against receiving us, we persisted in quartering ourselves for the night: on the whole, the conduct of these Kurds must be looked upon as very creditable to them, more especially when it is considered that any robbery committed at the present moment is certain of a perfect immunity.

20th.—Our active Bedwins were obliged to part from us this morning, moving off over the plains to Rās el 'Aīn, while we

* Lord Lindsay found tombs with somewhat similar massive stone-doors from 5 to 6 inches thick, and still moving on their hinges, at Um Kaīs, probably the ancient Gadara (*Athenæum*, No. 564). These tombs were inhabited, and my companions would have the tombs of Koh-Hīṣār or Kohrasar, to be also houses.

crossed a stream called Jahjah,* where there are the ruins of a bridge:† we now regained the great caravan road, and after a ride of 5 hours arrived at Meskó, a stationary village, where we found some of the Sultán's irregular troops: they looked at us with wonder; but the presence of a government Tátár saved us from troublesome inquiries and examinations. At this place there is some columnar basalt or rather basanite (augitic basalt), the columns of which are twice the size of any at Staffa or Fairhead, which are themselves larger than those at the Giant's Causeway. About 2 miles from Meskó some ruins indicate the former existence of a village; another, of which the tall minarets attract the traveller's eye on the road from Mōsul to Márdín, as well as on the present road, is called Kochasár, no doubt a corruption of Kōch-Hisár, and was formerly a place of some importance. We travelled till dark, and stopped at the small village of Gurmalah, the castle of Márdín bearing N. 66° E.

21st.—On our road to Márdín we passed a valley with rivulet and olive-groves, beyond which there are two villages built on the naked limestone. This place is called Kursú or Gurusdán. I had intended not to go up the hill to Márdín, but await at Gól, a Christian village on the plain S., a little W. of the city: as, however, some delay was likely to arise from our remaining below, we trudged up that tedious ascent, and exactly one hour from leaving the plain found ourselves at the level of the lower wall of the city.

22nd.—When Turkish affairs assumed so unfavourable an aspect as they did upon the late success of the Egyptians, and the overthrow of the Sultán's armies of seven years' growth, Márdín was one of the first towns to revolt in favour of the old state of things: everything that was European was discarded; the new military dress was looked upon as the cause of all misfortunes, and the Turks to regain their wonted superiority, had nothing to do but to reassume their old clothes. Not 7 years ago Márdín underwent, from its perpetually mutinous spirit, all the rigours of a capture by the troops of Reshíd Páshá, at which time, a mine was so skilfully exploded as to destroy a number of the Sultán's troops and a jámi' or large mosque, without in any way affecting the position of the mutineers, who had fled into the castle: since that time it has been attached to the Páshá-

* Or Jakhjakhab. See p. 527.—Ed.

† This river is a tributary to the Kaukab, if not that river itself, which may change its name near Tell Kaukab. It appears from Mr. Forbes's Memoir that all the streams flowing from the S. side of Karájah Tágh and the Márdín hills, fall into the Khábúr before the rivers of Nisibín, 'Azowár, &c., which again unite with it before its junction with the Hólí.

lik of Diyár-Bekr; and when the Sultán's government hastened, in the midst of its difficulties, to secure its authority, by the appointment of Sa'dullah Páshá, the people of Márdín saw no alternative but that of surrendering or going over to the Páshá of Mósul. The bigoted adherence of the latter to many of the exclusive Mohammedan superstitions, had gained for him many adherents in the city of Márdín, and he was accordingly allowed to send a governor there and a small body of troops, for which he no doubt received the thanks of the supreme government. Ibráhim Páshá will doubtless soon take possession of this town, when probably the ruins of the castle will be still further prostrated, and this unruly community will be sent to cultivate the beautiful plains that lie at its foot. In the mean time authority remains on but a ticklish foundation, and while the Egyptians are sending an agent to Dárá, which gives them the command of the great road from Constantinople to Baghdád, Sa'dullah Páshá is rifling the unfortunate Derrik on account of a real or supposed correspondence with the Chieftain of U'rfah. The irregular cavalry, of which there were from 1000 to 1500 at Márdín, were constantly employed in scouring the surrounding country in pairs; but they performed their duty without spirit. Márdín, which, from barometrical observations made during my former visit, I supposed to be 3125 feet, I now think, from further consideration, not to be more than 2300 feet above the level of the sea. From the castle of Márdín, Tell Kaukab bears S. 4° E.; the Sinjár hills extend generally from S. 54° E. to S. 12° E.; and the hills of 'Abd-al-'Azíz from S. 6° W. to S. 42° W.; the road to Mósul S. 21° E. The prospect from Márdín is one of the most striking that can be well conceived, not only from the almost infinite extent of cultivated land that lies stretched out at its feet as on a map, from the numerous villages and hillocks with which they are studded and which dwindle away in the distance to a mere mole-hill, but also from the vast and almost boundless expanse of nearly level ground unbroken by trees or rivers, and for the most part sinking gradually from sight to the utmost verge of the horizon, where everything is indistinct, and here, from the great height at which the spectator is placed, so extremely remote.

23rd.—As usual on the first day we only just made a start, for when the horses were brought, every one was found to want shoeing: we were joined here by a bishop and priest of the Church of Rome, who were going to Mósul: they had been to Constantinople in order to obtain a fermán for building a church, but had only succeeded in getting authority to divide one or more of the existing Jacobite churches into two parts by a central wall, which has in one case been carried into execution since our

arrival at Mōsul. We only travelled 3 hours to Harin, a village and tell.

24th.—About $3\frac{1}{2}$ miles from Harin is Kaşr Borj, a ruin of the same age as Dárá, being part of a castle in which, according to a tradition mentioned by our companion the bishop, a son of Darius once lived: $4\frac{1}{2}$ miles further on, we left the ruins of Dárá, with its vast granaries, remarkable tombs, and beautiful reservoirs, on our left. In front of Dárá there is another large granary still called Anbár Dárá: the river of Dárá, after flowing down into the plain, supplies the wants of a large village called Ahmediyah: from hence we bore away by rather a devious route to another ruin called Kaşr Serjân S. 70° E. from the tell of Ahmediyah, from which it is about 8 miles distant. Of these ruins in the form of a parallelogram, nothing remains except the foundations and part of two octagonal towers, one of which is almost gone. In the evening we arrived at Nişibín.

After the campaign of Sinjár in 1838, Háfiz Páshá attempted to renovate this very ancient city in a still fertile tract of country. A village was founded; protection, with some immunities, were offered to its inhabitants; and a jámi', with a large square building, called a kaşr, but serving as barracks, and a khán, were erected under the superintendence of Mírzá Páshá, a general of cavalry, who fell at Nizib, and was notorious in this neighbourhood for his exactions at Márdín: a large farm was also established; but all is now neglected: a few trees were planted, but it is doubtful whether they will succeed, as it is commonly believed that trees will not grow in these plains. Some new foundations had lately come to light; but I could not learn whether any antiquities had been met with in these excavations. The two tall columns of marble mentioned by Mr. Buckingham, and the church of St. James, formed from fragments of the ancient Nisibis, and containing some beautiful friezes, still remain to remind the traveller of a spot so often mentioned both in civil and ecclesiastical history.

25th.—We had some fine frosty weather; but our companion the priest could not get rid of an ague which he had caught on his journey, crossing the Mygdonius.* We passed Antari and Latíf, small villages, and a Christian village called Dezán Dik, perched on the very summit of the Márdín Mountains (Masius) to the N. We came to Tell Jihán, where, on due consideration, it was thought advisable to stop, after a journey of only $4\frac{1}{2}$ hours. The inhabitants were most brutal and ill-behaved, and gave us much trouble, although we had obtained a guard of four horsemen from

* The natives call the Mygdonius Jahjah, or Jakbjakhab, as well as the second river west of Meskó.

Nişibín, and were altogether sixteen persons, our party having increased as we went along, as travellers who intend to cross Sinjár wait in the neighbourhood till others come up, that they may altogether form a considerable body.

26th.—We passed the mound and village of 'Aznowár, with a rivulet and a few trees: and one mile beyond it, is a more rapid stream, the Hassáwí of Mr. Forbes, which bounds the basaltic district, the limits of which, from Jezíreh westwards, are traced in my former narrative. The country now changes from a cultivated to a grassy plain, broken by occasional ravines and rivulets. After a ride of 7 hours, we came to Chil-aghá, two villages close to each other, where we were received by a lady who has the management of the post, and was immediately converted, by a small handkerchief, into a warm friend. We accordingly fared well at Chil-aghá, and a lamb was killed for our supper; but our party had become so numerous, that by some strange accident it was consumed while dressing.

27th.—We now entered upon a still more desolate tract than that which we crossed the day before. Eight miles from Chil-Aghá was a tell with four tents, the inhabitants of which had been lately robbed of their flocks by some of the Sinjár people. They lived under the jurisdiction of Jezíreh, and the governor of that place had despatched 300 to 400 horsemen, whom we had seen the day before on their way, to endeavour to recover some of the lost sheep. The tell of Rumálah, as it is called, which we were now passing, is the commencement of that part of the high road to the E. which has been the scene of so many of the foul deeds committed by the followers of Khalífah on the one hand, and the tribes of Sinjár on the other; but they were always assisted by the villagers. The country is a nearly level and uninterrupted greensward, without water, and with only here and there a tell or mound to break its uniformity. By a proper distribution of the waters descending from Masius and the Ba'arem hills, it might however be in great part brought into cultivation, and made to maintain an industrious population, instead of the worthless vagabonds to whom it is now abandoned.

Every one of our party now began to enliven the tedium of the road by tales of robberies and murders committed at various points. The Tátár had his tale, the Súrujís theirs, and most of the travellers added to the general stock. I could not, however, help feeling a melancholy interest myself, when a mound called Chár Perú was pointed out to me as the spot where Mr. Taylor and his unfortunate companions were murdered some years ago. Such occurrences are so many indelible stains upon the government under which they occur; for the tribes of Sinjár are not like the Bedwíns of the Desert, and might, with a little trouble

and expense, for which the government would ultimately be repaid, be kept in order.

The mound of Chár Perá, and another of larger dimensions, which we passed on this day's journey, were mere accumulations of ruins, abounding more particularly in pottery, and apparently of Saracenic or Persian origin. The second mound of ruins here noticed is called Athlán Tepeh-sí,* and appears to have been a place of much magnificence. We slept this night by the side of a brook called Aiwánet, our party separating itself into many different groups, busily but vainly endeavouring to blow some wet rushes into a fire.

28th.—We were now approaching the Tigris, and the red sandstone and gypsum deposits on the E. side of the river formed low ranges of hills, stretching into the plains of Mesopotamia, Jebel Ghárah to the N.E., consisting of sandstone, and the more lofty Jebel Músh to the E., of gypsum; both ranges running N.W. and S.E. At the foot of Jebel Músh is a tell of the same name: on this mound there is a castle erected by Ahmed Páshá, the predecessor of Mohámmad Páshá, as governor of Mósul. It was built with a view to keep in subjection the tribe of Arabs who dwell on the banks of Tigris, and in the vales W. of Jebel Músh, not far from the site of Eskí Mósul. This tribe, which has for many centuries been here established, is called the Mósulí 'Ashírat, i.e. the Mósul-tribe.

Further onwards we came to another fort, also built by Ahmed Páshá, and called Faukání Maráka, to distinguish it from a tell at a lower level near the meeting of two brooks, called Maráka Suffí.† In the evening we reached Abú Marri or Abú Maryam, described by Mr. Forbes as a ruined village, near which there is a most abundant spring of brackish water, forming a small brook, which is, however, soon lost in reedy hollows. This abundant spring is a subterranean rivulet, at that time 16 feet wide and 2 deep, just issuing again from the earth. Phenomena of this kind are exceedingly common in the gypsum-district near Mósul, where waters after sweeping along for some distance beneath the superincumbent light and porous rock, reappear in deep ravines of the same rock, perhaps again to be lost in subterranean passages, till these fall in and disclose a brook or open a valley. On this road, about 2 miles from Abú Marri, there is a remarkable subsidence of this kind; and there is another near Mósul, where people go to shoot pigeons. This is easily understood; but there is another feature in the gypseous districts not so easy of explanation, although very frequent; it is the elevation, at the surface of the earth, of beds of gypsum, like so many semi-

* Tamarisk-hill.—Ed.

† Or Suffání.—Ed.

circular domes. These are sometimes small, at others larger, but seldom above a few feet in diameter, and always hollow within. When we consider that there are sulphur mines and many hot-springs impregnated with sulphureted hydrogen (hydro-sulphuric acid) near Móşul, all in the same rock, the effect of the evolution of gaseous matters immediately presents itself forcibly to the mind.

Abú Marri was now inhabited, but only by occupiers of tents; its *kaşr*, or barrack, was full of soldiers; and the residence, not of a Musellim, but of a Zâbit, an inferior officer.

29th.—We advanced towards the eastern foot of the Dólábíyah hills of Abú Marri, on our left hand. After a journey of two hours and a half, we reached the ruins of a village called *Khatún 'Arabah-sí*:* the Abú Marri hills being still on our left hand $2\frac{1}{2}$ miles distant, the Dólábíyah hills to our right 3 miles. We had passed the ruins of Dóláb† or Dólábíyah 25 minutes before. On a plain where there were now only a few silver-leaved syngenesious plants, an ononis, and a robinia‡ with withered leaves, but as yet not a blade of grass or of bulbous-rooted flowers, a bright orange-coloured caterpillar had survived the sharp frost of the night. At 4h. 45m. from Abú Marri we passed Selghát 'Arabah-sí, another ruined village; and shortly afterwards, leaving the village of Ahmedát $\frac{1}{2}$ a mile on our left hand, we continued along gypsum hills, from whence we first obtained a view of Móşul, its remarkable, tall and falling minaret bearing S. 85° E. We reached the Sinjár gate of that city, 7 hours from the time when we left Abú Marri; but while we were allowed to enter ourselves, our baggage was ordered round to the palace, in order to be examined. Moḥammed Páshá is remarkably strict, and allows no one to enter or go out of the town without his permission; and it is next to impossible for a ra'yah, or native, to obtain permission to leave it altogether: at the same time, correspondence with Constantinople is as much as possible impeded. By these means the population of the city is constantly on the increase, and it may probably boast of from 40 to 45,000 inhabitants. Handsome new barracks have been erected outside of the walls near the Tigris; and the Arabs can no longer come and rob with impunity at the very gates. The reverses of Nizib were not felt at this distance; and thus, while other Páshálik is in a state of temporary depression, Móşul is more populous and more orderly than ever.

* Lady's waggon.—Ed.

† Water-wheel.—Ed.

‡ This, with the acacias seen near Ayás, was probably some other leguminous plant, as neither of the genera named are indigenous in Asia Minor.—Ed.

XV.—*Report of a Journey to the Sources of the Āmú Deryá (Oxus); with some Observations on the River Indus.* By Lieut. Wood, I. N.

AFTER observing that the Indus, from the flatness of the alluvial land at its mouths, and the perpetual changes to which the course of the streams forming its Delta are liable, presents insuperable obstacles to navigation by any but very small vessels, such as the natives use, and that Karáčí is the only harbour near its entrance which affords safe anchorage from February to October, Lieut. Wood says, that by means of fairs established at suitable places on the banks of the river, depôts might be formed for goods sent by European merchants, and a beneficial commerce carried on with the natives of Afghánistán on one side, and the Panjáb on the other, who at present have no intercourse with Europe, except by very circuitous routes. Wool, he observes, might be procured to almost any amount by that channel. The country immediately above the commencement of the alluvial deposit, furnishes rock-salt, alum and sulphur, in the immediate neighbourhood of the river. Good coal is found near Kálá-bágh, but in beds of such small depth as to make it doubtful whether they could be profitably worked. Iron and other metals abound in the mountains between that place and Aṭak. Grain and other indispensable articles of food could also be supplied by the Indus to Western India, independently of the monsoon, so as to secure that country from such a calamity as the dearth of 1814, the horrors of which are so feelingly described by Captain Basil Hall.

It is in vain, says Lieut. Wood, to look for remains of antiquity in such a country as the Delta of the Indus, where the buildings themselves are so perishable, and the changes in the river's channels so frequent and destructive. The imbedded hull of a gun-brig, near Sikkar, is a striking evidence of the latter circumstance, which may also be inferred from the tamarisks everywhere indigenous between Karáčí and Kach'h (Cutch), which are mere shrubs in the lower tracts, and large trees* higher up the country. The Heads of the Indus, or rivers of the Panj-áb, are subject to similar changes; and that, says Lieut. Wood, will account for our inability to find any remains of the altars erected by Alexander at the easternmost limits to which his army had advanced.

The Trial by Ordeal, which is still prevalent among the natives on the banks of the Indus, was very unexpectedly wit-

* But are they of the same species? The tamarisks indigenous in southern Europe, and in most parts of Asia, rarely, if ever, attain the size of trees.—ED.

nessed by Lieut. Wood. "Seeing a crowd," he says, "one day congregated round a well, I walked to the spot, and was witness to the following Trial by Ordeal, which may be termed that of water, and the bow and arrow. The depth of water in the well was 18 feet, and in its centre stood an upright pole. Two criminals were to be tried for theft, one of whom was already in the well, clinging to the pole, with only his head above the water. A little on one side, with his back to the criminal, stood an archer with his bow bent and his arrow on the string. At a given signal, away went the arrow, and the culprit disappeared. No sooner had the arrow reached the ground than a young man, swift of foot, left the bowman's side and made towards it, which on reaching, another runner, equally fleet, snatched up the arrow and set off for the well. As he reached us at a winning pace, all eyes looked over the parapet into the well for the criminal's reappearance. His friends breathed short, while hope and fear were depicted in the countenance of all. At last the runner reached the goal, and was followed by the appearance of the suspected person. A loud shriek proclaimed the latter's innocence, and the crowd's satisfaction. The other criminal now prepared to descend into the well; but before doing so, a lock was shorn from his thin grey hairs and fastened to the arrow. He was the reverse of confident, and his looks were certainly not in his favour. Prayers were offered, and many fingers pointed to the heavens, while voices exclaimed, 'Allah will clear the innocent!' The trial was gone through, and with the same happy result as before. These injured men were now placed upon the backs of two bystanders, and so mounted, were led through among the crowd to receive its noisy congratulations. This over, their female relations came forward, and contented themselves with printing a silent kiss upon the cheeks of the once suspected but innocent men."*

The Indus beyond Kalá-bágh, where it escapes from its mountain barriers, being little better than a series of rapids as far as Atak, that portion of its course had never been examined. Lieut. Wood was therefore directed by Sir Alexander Burnes to go up by water, while Sir Alexander himself proceeded by land: but, with a good boat and a powerful crew, it was not possible to work against the stream for more than about 20 miles, to Tórá Málá. Quitting the stream, therefore, at that point, and going by land to Atak, Lieut. Wood procured a boat there and went down the

* The use of the word "Allah," in Lieut. Wood's narrative, would lead the reader to suppose these natives were Muselmáns: as, however, the *parikshá*, or trial by ordeal, is one of the most ancient ordinances of the Hindú law (*As. Res.*, i. 402, 800), they were probably Hindús.—ED.

Indus to Kálá-bágh, in order to complete the survey from Atak to the Sea. "The passage," he says, "was fearful enough in some places; nor could he say where it was most so." Occasionally the channel is contracted and pent in by high rocky walls on each side, and the stream rushes onwards at the rate of 9 miles an hour: in other places the current is opposed by a jagged ledge, and the water foams and rages along through narrow channels, and dashes over the protruding rocks that continually impede its course. Immediately above Kálá-bágh the stream is enclosed between walls 100 feet high.

Lieut. Wood, on his return, followed up the western branch of the Indus,* through the country of the thievish Bangí Khaíl, Khattak, and Bangash tribes; stopped some days to examine the sulphur-mines near Kóhát, crossed the Afridí mountains, and, after rejoining the mission at Pesháwer, returned next day down the Kábul River to Atak, in order to connect those two points by chronometric observations. From the sea to Mit'han-kót, where the rivers of the Panjáb join the Indus, our maps, he observes, are generally correct in latitude, but wrong in longitude; while the reverse is the case between Mit'han-kót and Atak. Two excellent chronometers, used by Lieut. Carless, I. N., in the survey of the Mouths of the Indus (*Royal Geogr. Jour.* viii. 328), were carried by Lieut. Wood through the whole of these journeys, and their regularity was such that the positions determined by the mean of their data may be fully relied upon. In the latitude of places between Pesháwer and Kábul, he adds, there is an error in our maps of about 10 miles.†

The remainder, and most important part, of this Report, shall be given in his own words:—

"We had not been many days in Kábul when I was sent to map the adjacent province of Kóh-Dáman, from which I was soon recalled, to accompany Dr. Lord into Tartary. On starting, we attempted to penetrate by a new route to Europeans,—the Pass of Sari-lang; but the season was too far advanced; and after having been all nearly lost in the snow, we returned to Kábul, and thence proceeded by the common road of Bámiyán.

"We had a *carte blanche* from Sir A. Burnes, who, with his well-known zeal for the improvement of geography, was not wanting in stimulating us to make the best use of this glorious opportunity. We reached Kunduz on the 4th December, 1839, and by the 11th Dr. Lord had obtained permission of Murád Beg for me to trace the Āmú (Oxus) to its source; and next day I started on this

* Of which there is no trace in our best maps.—Ed.

† Lieut. Wood does not say whether N. or S.—Ed.

interesting journey. In Badakhshán I was delayed a month, by the severity of the season and unfavourable accounts of the roads; but here I had ample employment, in making vocabularies of the different dialects spoken around, there being in Badakhshán alone, five in use. In the interim I also visited a deposit of lapis lazuli, and saw, though ice and snow debarred any farther approach, the direction of the celebrated ruby mines, about 40 miles to the S. That month, however, was a weary one; and right glad was I again to set forward towards the original object of my expedition.

On the 31st of January, 1838, going up the Āmú, we reached Wákhán (the Vokan of Marco Polo);* and in this valley, were fortunate enough to stumble on a horde of that singular people the Kirghiz, from Pamír, who this season, for the first time on record, had come down to pass the winter in Wákhán, instead of descending along the table-land to Khókand. Our introduction to them was as follows. In the midst of a heavy fall of snow, we reached a village called Ishtrákh. I should have passed it unnoticed, but for a Tibetan yák or kúh-gáu (mountain cow), as the animal is here called, standing before a door with its bridle in the hand of a Kirghiz boy. There was something so novel in the sight that I could not resist the impulse of mounting so strange a steed; but in doing so, met with a stout resistance from the little fellow who had it in charge. In the middle of our dispute the boy's mother made her appearance, and very kindly permitted me to try the animal's paces. It stood about 3½ feet high, was very hairy and powerful. Its belly reached within 6 inches of the ground, which was swept by its bushy tail. The long hair streamed down its dew-lap and fore-legs, giving it, but for its horns, the appearance of a huge Newfoundland dog. It bore a light saddle, with horn stirrups; a cord let through the cartilage of the nose, served for a bridle. Nor was the rider less interesting than the steed she bestrode. The good Kirghiz matron wore some half-dozen petticoats, under a showy blue-striped gown; the whole sitting close to her person, and held there, not by ribbons, but by a stout leathern belt round her waist. Her rosy cheeks and Chinese countenance shone from under a high white starched tiara or crown, while a broad band of the same colour and material protected her ears, mouth, and chin; worsted gloves covering the hands; and her feet were equally well taken care of. She chid her child for not permitting me to mount the kúh-gáu; and I quite won the good woman's heart, by praising the lad's spirit, and hanging a string of beads about his neck.

* Vokan, chap. i. Fr. Vers.; Mascham, i. ch. xxxvii. Latin Vers. (Rec. de Voyages publié par la Société de Géographie.) See also Astley's Coll. of Voyages, iv., 586.—ED.

"Nor were the natives of the valley less interesting than these strangers, since all the rulers around professed to be descendants of Alexander the Great. I may add that in this secluded region traces, faint, but marked, of Zoroaster's creed, are still found; not to mention the ruins of three temples ascribed to his followers, one of which is still known as belonging to Sumri Atish Purast, or Sumri, the fire-worshipper.

"From Wákhán, escorted by the Kirghizes, we set out for Pamír, having first ascertained that one of the sources of the Āmú lay there. Going up the stream, sometimes on its frozen surface, at others in its rough snow-encumbered valley, we reached a plain, where, to quote from Marco Polo, "you might suppose the surrounding summits to be the highest land in the world. Here, between two ranges, you perceive a large lake, from which flows a handsome river that pursues its course along an extensive plain covered with the richest verdure." This account of the Venetian traveller is substantially, though not literally, correct.

My own remarks made on the spot were as follow:—"We had no occasion to remark the absence of snow this day; for every step in advance, it lay deeper and deeper, and near as we had approached to the source of the Āmú (Oxus), we should not have succeeded in reaching it, had the river not been frozen. We were fully 2 hours in forcing our way through a field of snow not 500 yards in extent. Each horse of the party took the lead by turns, and struggled onwards until exhaustion brought it down in the snow, where it was allowed to lie and recruit its strength, while another was brought forward. It was such a relief when we again got upon the river, that in the elasticity of my spirits, I pushed the pony to a trot: this a Wákhání perceiving, seized hold of the bridle, and cautioned me against the *wind of the mountain*: we had indeed felt the effect of a highly rarefied atmosphere ever since leaving Wákhán; but the ascent being gradual, its effects were inferior to what would be experienced in climbing a mountain of equal altitude. As we got near to the head of the Āmú (Oxus), the ice became weak and brittle; a fact of which a yábú's (pony's) disappearance gave the first warning: though deep, there was fortunately little current at the place where the accident occurred; and as the missing animal was fastened to one of its companions by a halter, it was extricated at the expense of its gear and lading. The kind-hearted Kirákásh (mule driver), to whom the animal belonged, wrapped it in felts, took off his own warm pútin (a large coat of sheepskin with the wool inside), and bound it round the shivering beast: had it been his son instead of

his yábú, he could not have passed a more anxious night as to the effects of the ducking. The morning in due course dawned, the yábú was alive, and the good mule-driver thankful.

"Shortly after this accident we came in sight of a rough-looking building decked out with horns of the wild sheep, and all but hidden in the snow. It was the last home of many a wandering Kirghiz, and lay a little to the right of our line of road; but on coming abreast of it, the leading horseman who chanced to be of the same tribe, pulled up and dismounted: his companions followed him, and wading through the deep drift, reached a tombstone, the top of which was uncovered: before this they knelt, all encumbered as they were with their huge forked matchlocks strapped to their backs, and offered up prayers to the Almighty: the whole of the party involuntarily stopped till they had finished. The stillness of the scene, the solitariness and wintry aspect of the waste, with the absence of all animated nature save the Kirghizes and ourselves, was not unimpressive to a reflecting mind.

"After quitting the surface of the river, and having travelled about an hour along its right bank, the Kirghizes signified its source to be very near. Declining a little to the left hand, we ascended a low mound that shut out the view to the eastward, and on reaching its summit at about 5 o'clock in the afternoon, we stood (to use the native expression) upon the Bámi Dunyá (terraced roof of the world); while before us lay stretched out a noble lake, from the W. end of which issued the infant river Āmú (Oxus). This fine sheet of water,* the length of which is 14 miles by 1 in mean width, is crescent-shaped, the chord of the arc extending due E. and W. On three sides it is bordered by hills which, along its southern convexity, rise into mountains mantled with eternal snow, from which never-failing source this lake is supplied. To the E. and N. the hills are ridgy and low, few swelling to the height of 500 feet, and all are free from snow long before the icy fetters of the lake are dissolved. On the W. the water is confined by the mound before mentioned, and the passage by which the rivulet escapes looks much as if it had been cut in a natural embankment. The stream, when clear of the reservoirs, is 5 yards wide and a little better than ankle-deep, moving over a smooth bed with a

* It is known in Turkistán by the name of Sari-Kól, which literally means the head of the Darah, *Sir* signifying *the head*, and *kól* a *darah*, *defile*, or *valley*. [The author seems to have been misled by his knowledge of Persian; Darah Sir is probably the valley of the Sir (Jaxartes), here confounded with the Amú (Oxus): Kól is a Turkish word, pronounced gól (like the French word gueule), at Constantinople, and signifying a lake. The Tatars say Kúl or Kól.—ED.]

gentle velocity of from $3\frac{1}{2}$ to 4 miles per hour. Its colour, like the lake, was touched with a reddish shade, and the smell of the water was slightly fetid. The temperature of both was 32° of Fahrenheit, and yet neither were frozen when they parted. The rill continued free for about $\frac{1}{2}$ a mile below its fountain-head, and the same phenomenon extended over 15 square yards of the lake.* The mean of several observations on the boiling point of water by our thermometer,† gave 15,600 feet for the level of the lake above the sea; nor do I think the highest peaks of the snowy mountains lying on the S. side of the lake, rise 3400 feet higher, which would give about 19,000 feet for the altitude of the Pamír or Tartaric Caucasus."

* The ice on other portions of the lake was 3 feet thick.

† This thermometer is now in the possession of the Royal Geographical Society.

ANALYSES.

I.—*Reise in die Steppen des südlichen Russlands, &c.* [*Journey through the Steppes of Southern Russia, undertaken by Dr. F. GÆBEL, accompanied by Dr. C. CLAUS and Mr. A. BERGMANN.*] Dorpat. 1838. Published by C. A. KLUGE. Communicated by Miss WILKINS.

IN January, 1834, Dr. F. Gæbel, accompanied by two of his pupils, left Dorpat to explore the Steppes of Southern Russia. His chief objects were to examine the various salt-lakes of that district and the salt-plants, in reference to their geographical distribution and their use in the fabrication of soda—and to analyse chemically the waters of the Caspian, Black, and Azov Lakes, and the gaseous exhalations of the mud volcano of Taman; while barometrical and hodometrical measurements and a collection of the most important productions of the vegetable and animal kingdoms were not to be neglected. His work consists of two thin quarto volumes, of which the first contains the narrative of his journey, the second the results of his scientific investigations. Dr. Gæbel left Dorpat on the 21st of January; went first to St. Petersburg, and thence to Moscow, where he spent six days in examining the ancient city of the Tzars; he left it on the 13th of February, and taking the high road to Sarátav, through Vladímir, Murom, and Penza, arrived there on the 15th. Sarátav lies on the right bank of the Volga, which is there 4 versts broad: here he was obliged to await the return of spring before he proceeded to the Steppes; and on the 15th of April he set out again over the hills near the Volga, still covered with masses of snow and ice, which filled all the ravines. The next station was the German colony Talovka; between which and the next station, Ust Salikha, the land was partly arable, partly steppe covered with the *stipa pennata*, on which large herds were feeding. Then passing through the colonies Kámenka and Ust Gresnukha, he arrived at Kamishin, where he left Dr. Claus and went on to the Elton-lake, in order to obtain a simultaneous level of the two points. Kamishin lies close to the Volga, where the bank is high and steep, consisting of chalky marl and beds of clay; but the opposite bank is flat, sandy, and covered with willows. On the 18th of April, after visiting a Malo-Russian village on the other side of the Volga, Dr. Gæbel went on to Taki, which he left at 5

the following morning. A strange feeling seized him, he says, at the emptiness and uniformity which surrounded him—nothing being visible but the sky and the steppe. At 10 he reached the Peshchánaya station, where he met many Tartars from the government of Kazan trading with the Khán of the Kirghizes. The next station, Gozdarevi, lay only a few versts from a bitter salt-lake, Górkoye O'zero (Mountain Lake), which he visited to obtain some of its water. Before he reached the lake he passed over large tracts covered with masses of white efflorescent salt, of which he took some, as well as of the earth lying beneath it, in order to analyse it chemically. The shore of the lake was shining, and covered with saline plants; the lake about 30 versts in circumference. He reached the Elton-lake on the same evening. The surface of the lake was not then covered, as it is later in the year, with a crust of salt; but a number of crystals of salt were formed, which sank as soon as they had acquired a certain size and weight. The water is nowhere more than $8\frac{1}{2}$ vershóks* ($14\frac{1}{8}$ inches) in depth, and covers a firm white ground of salt. The Calmuks gave it the name of Altún Nor, 'Golden Lake,' whence its name Elton. It was found by observations on the 21st of April, to be 6.5 toises lower than the Volga at Kamishin. On the 23rd he left the shore of the Elton-lake, and arrived at the palace of the Khán Jehángir, which is tastefully built of wood, and furnished with costly Persian carpets and other luxuries. In summer the Khán lives under a tent in the steppe. To the N.E. of the Khán's palace, at a distance of about 2000 paces (schritten), begin the Rýnpeski sand-hills; they extend in a northerly direction about 20 versts ($13\frac{1}{4}$ miles); on the E. they are from 20 to 30 versts ($13\frac{1}{2}$ to 20 miles) in breadth, and, turning first to the S.E. and then S., extend to the northern shore of the Caspian.

These sand-downs are of a very peculiar form, and have a strange and indescribably gloomy aspect; they are heaped up in the form of waves, alternating with hollows of equal dimensions. Good water is found a few feet deep in the sand.

The Kirghizes who inhabit this tract are a strong-looking race, with brown faces of the Mongolian character; their mode of life is simple, and they generally attain a great age. On the 26th of April Dr. Gæbel left the Khán's dwelling. In order to determine the route, he took his hodometer, and tablet in hand, directed their course by watch and compass, for they travelled without any road straight through the steppe, which was at first firm and grassy, and about 1000 paces in breadth, sometimes wider and sometimes narrower, while on both sides, and before them, sand-hills were to be seen, which, as they approached,

* The vershók is $1\frac{1}{4}$ in. English.

seemed to divide, and were separated by firm, green, winding valleys, containing many salt and fresh-water pools.

27th.—The steppe became hilly, and Dr. Gæbel's course, which had been from N.E. to E., was afterwards to the N.

28th.—The sand-steppe now changed to loam. He reached the caravan-road from Astrakhán to Orenburg, but soon left it again, and pursued an E. and afterwards a N.E. course, often passing many large ponds overgrown with reeds, continuations of the Kamýsh-Samara lake; and crossing the Little Uzen, which flows into that lake, on a rough bridge of trees, arrived at Glinyoï. The Kamýsh-Samara lake consists of two separate sheets of water, of which one is fed by the Little Uzen, the other by the Great Uzen; both consist of a number of larger or smaller basins connected with each other by natural canals. The lake of the Little Uzen consists of 10 or 12 such basins, and is 120 versts (80 miles) in circumference. That of the Great Uzen is larger. The shores of the lake are swampy, and overgrown with reeds—whence its name, which signifies "darkened with reeds."* Glinyoï has 271 inhabitants, a mixture of Russians, Cossacks, Calmuks, and Tartars. On leaving Glinyoï Dr. Gæbel went northwards to Stepánovo O'zero, a small salt-lake, on the surface of which shone a number of crystals, and its bottom had a smooth salt coating of such firmness as to bear both horse and rider.

These salt-lakes, says Dr. Gæbel, produce a singular impression, looking like cold glittering plains of ice amidst the green and blooming soil. Turning eastwards, he passed four large fresh-water lakes, and came to the Great Uzen river, which he crossed on a raft. The distance from Glinyoï, according to the hodo-meter, was $19\frac{1}{2}$ versts (13 miles). The steppe was here more uniform than on the other side of the Uzen, and did not present the same wavy formation. No tents nor flocks were to be seen, nothing but treacherous images of lakes, towns, and forests. It belongs to the Uralian Cossacks,† and is used by them for pasture. Turning E.N.E. over a beaten track, and then direct E., the party reached Kalmúkova on the Urál. The right bank of the Urál is from 3 to 4 fathoms high; the left flat and adorned with beautiful willows and poplars and luxuriant meadows. The stream is rapid, and its waters turbid, and it is from 150 to 200 fathoms broad. The distance from Glinyoï to Kalmúkova, 145 versts ($96\frac{3}{4}$ miles); 45 versts further, passing through the outposts Krasnoyár and Kharkin, he arrived at the fortress of the Inderski mountains. All along the right bank of the Urál there is a line of posts to guard against the irruptions of the Kirghizes, who inhabit the opposite steppe. Dr. Gæbel explored the Inderski salt-lake, which is smaller than the Elton, and 46 versts ($30\frac{3}{4}$

* Rather "covered with reeds." Literally "reed-grown."—Ed.

† Properly Kazák.

miles) in circumference, and then hastened through Sarachik to Guryev. The country between Sarachik and Guryev appeared very rich; the earth was black, and clothed with luxuriant grass; there were a number of channels running from the Urál to the Caspian, all dry. At Guryev the waters of the Urál flow in one channel, and divide 6 versts (4 miles) below the town. The first branch flows into the Béloi Ilmén, 12 versts (8 miles) S.E. from Guryev; the next, the Poltávaï, flows westwards to the sea. After a short course, the stream again separates into four branches, which flow S.S.W., S., and S.S.E. into the sea; they are the Yaitsky, Zolotoi, Gnilaya Bukharka and the Peretask; so that, of the former many mouths of the Urál, only six now remain, which lie from 12 to 14 versts (8 to 9½ miles) from Guryev. Many considerable branches which, ten years ago, were navigable, are now dried up and overgrown with reeds. Even the Poltávaï, through which Dr. Gæbel passed, was already so small that his vessel touched the sides, and probably in a few years it will no longer be navigable. This drying up of the mouths of the Urál is occasioned by the mud and sand brought down by the river, and doubtless increased by the fisheries: for there is not an inch of the river's bed undisturbed by the fishermen's nets, which set the sand and mud in motion: these, naturally flowing to the mouths, are there detained by the reeds with which the banks are covered. The waters of the Caspian also are slowly decreasing. Dr. Gæbel visited several of the islands in the Caspian, and having explored some hills of gypsum at a short distance from Guryev, then went along the northern shore of the Caspian in his way to Astrakhán. In the upper part of that town which stands on an elevated island of the Volga, there is a fine cathedral, the towers of which command a beautiful view of the city with its broad streets and canals bordered by trees, the haven covered with ships and of the broad majestic Volga with its beautiful green islands. Astrakhán is 85 versts (56½ miles) from the mouth of the river. After visiting the Glauber-salt lakes at Kigach, Dr. Gæbel went northwards to the Arzargar, which is a high loamy steppe stretching from S.W. to N. about 28 versts (18½ miles), and in breadth from 5 to 6 versts (3½ to 4 miles), and containing a number of gypsum hills varying in size and elevation, most of them having a semicircular form, and many being crater-shaped at the top; the highest, according to barometrical measurement, had an elevation of 60½ feet above the steppe, the steppe being from 80 to 100 feet above the level of the neighbouring salt-lakes. Pursuing his course in a N.W. direction, he came to Chapchachi, a ridge of hills elevated about 60 feet above the steppe in the form of an oval, enclosing a loamy, flat and salt valley containing many salt-pools. The hills contain gem salt, above which is sandstone, and above that, the common yellow sand of the steppe. The salt was colourless and

firm, and contained clear and perfectly transparent cubes. Thence he travelled W.N.W. to the Bogdo mountain—a hilly ridge rising out of the flat steppe, and stretching from N.W. to S: at its foot lies the large salt-lake Baskunshatskoï Solénoï (saltern of Básh-kunshát), commonly called the Bogdo lake, which is 40 versts ($26\frac{2}{3}$ miles) in circumference. The Kalmuks consider the summit of the mountain holy, and neither threats nor bribes will induce them to ascend it.

On the 16th of June Dr. Gæbel reached the large village of Vladimirovka, which terminated the journey through the steppe. The whole distance from Khochetavka to this village was 338·3 versts ($225\frac{1}{2}$ miles). He then crossed the Volga to Chérnoiyár, and thence pursued the post-road to Sarepta, which he reached on the afternoon of the 17th. It lies picturesquely on the declivity of the Volga mountains, which here, for the last time, approach the river, and then turning suddenly to the S. are lost in the Kalmuk steppe. He visited the medicinal springs at 7 versts ($4\frac{2}{3}$ miles) from Sarepta; and on the 19th went over the mountain ridge which stretches behind Sarepta, in a zigzag direction to the river Manych, and afterwards turns into the Chérnoemorskói (Black Sea) territory. At Dubovka this ridge separates from the Volga-hills; and Pallas, not without reason, considers it as having been formerly the shore of the Caspian. Its height at Sarepta was 390·8 feet above the level of the Volga. At Sarepta Dr. Gæbel was detained four weeks by fever.

On the 13th July Dr. Claus went to Pati Isbensk, on the Don, to take the level of the river, and found it to be 123 feet above the level of the Volga at Sarepta. On the 16th of July Dr. Gæbel followed Dr. Claus to Pati Isbensk; and on the 19th they left that place and proceeded to Taganróg. The road at first led over the hills near the Don, where they saw on all sides ancient sepulchral mounds, and then descended into the beautiful valley of the Chir, the flora of which was quite different from that of the steppe of the Volga, being entirely European. From Taganróg they sailed to Yení Kaleh (new castle), from which the large and active mud volcano in the peninsula is only distant a few versts. The lighthouse is on the point of a ridge on the sea-beach, parallel to which runs another ridge at the distance of about 1 verst. Here are found springs of naphtha, and mud volcanoes. Many of the summits of the hills have openings, varying from 4 inches to several feet in circumference, filled with a slimy mass, in a bubbling state, as if boiling, although its temperature did not then vary from that of the atmosphere: from time to time, it overflowed and ran down the sides of the mountain. The mud was the same grey clay as that found in the salt-lakes of the Kirghiz steppe, and in the Caspian and Azov-seas. The salt-lake Chakraskoï lies close to the sea of Azof, being divided from it on

the N. side only by a narrow strip of land, and it is of the same elevation. Tamán lies 100 yards from the shore, and 19 versts (12½ miles) from Tamán is the nearest mud volcano on the ridge of a mountain, from 200 to 300 feet high. The whole mountain, from the summit to the foot, was covered with ejected mud, which on the lower part was overgrown with grass.

On its summit many mud volcanoes were in activity, which from time to time threw out clay mixed with salt water. A number of openings, large and small, were dried up; so it appears probable that in time the rest may cease. The gas and mud were without smell; the water had a salt taste: 3 or 4 versts further on, there are springs of naphtha.

On the 8th of August the travellers went from Kerch to Theodosia, and visited by the way the Sivásh or Putrid Sea. Theodosia is one of the most beautiful towns of the Crimea, adorned with many new and tastefully-built stone houses, while the remains of the ancient walls and towers call to mind its former grandeur. Among the public buildings are a Greek and a Roman Catholic church, two synagogues, two mosques, the custom-house and the lazaretto. Whilst in possession of the Genoese, it was so populous and flourishing that it obtained the name of the Constantinople of the Crimea. Its haven is secure, spacious, and deep, so that large vessels can come up to the quay. Its inhabitants, 4500 in number, are Russians, Germans, Tartars, Greeks, Armenians and Jews: Gipsies have huts outside of the town. From Theodosia they went to Sympherópol; thence round the southern coast of the Crimea, which Dr. Göebel describes as containing all that is most beautiful in nature; in short, an earthly paradise. The population, Dr. Göebel remarks, is evidently not what it was in earlier times, and the land is lying uncultivated.

They thence proceeded to Eupatoria or Kozlów, visiting by the way the salt-lakes and mud-baths of Sák. At Eupatoria they inspected a newly-made Artesian well. It was 440 feet deep, and the water rose to within 7 feet of the surface of the ground. The water tasted slightly salt and sulphureous. It is to be conveyed in pipes to the sea-shore, where it will spring 4 feet above the surface.

From Kozlów they went to Perekóp, and thence to Khersón, where, while Dr. Göebel was engaged in some barometrical measurements on the banks of the Dnieper, he was suddenly surrounded by the police, and with difficulty saved his barometer, which they endeavoured to carry off, as an unknown and suspicious instrument. On the 24th of August they left Khersón, crossed the Bug at Nikolayev, and thence proceeded to Odessa. On the 28th they left Odessa, and on the 15th of September again reached Dorpat.

Dr. Göebel on his return submitted to M. Parrot his baro-

metrical measurements of the levels of the Caspian and Black Seas, which M. Parrot calculated and arranged. They are, first, barometrical observations made in Astrakhán by M. Osse, and at the same time by Dr. Gæbel, at different points of the sea of Azov and the Black Sea; secondly, a whole year's continued observations at Sympherópol, directed by M. Steven, with whom Dr. Gæbel left one of his barometers; while during the same year M. Osse made simultaneous observations at Astrakhán. The first series of observations, extending from July 24, 1834, to August 25th of the same year, gives as the result, the level of the Caspian, 7.1 toises lower than that of the Black Sea; but this, which is the simple arithmetical average of all the observations, M. Parrot afterwards reduced to 5.3 toises; as on some days many observations were made, and on others only one, and any variation of the barometer occasioned by temperature would be multiplied by the number of observations, he thought the fairest way would be to take first the average of the daily measurements, and then to reckon from that the general average, which was thus reduced to 5.3 toises. The observations made by M. Steven in Sympherópol, and M. Osse in Astrakhán, from September 1st, 1834, to September 1st, 1835, give, as the result, the level of the Caspian 16.5 toises lower than that of the Black Sea. But this difference M. Parrot considers to be almost entirely owing to the difference in temperature between the two places, the lower temperature in Astrakhán depressing the barometer.

The particulars of this calculation are detailed at length in the fifth chapter of the second volume. M. Parrot's general conclusion from all these observations is, that it is highly probable that there is no important difference of level between the two seas. The observations of M. Parrot in 1811, made the level of the Caspian 300 feet lower than that of the Black Sea; but his observations in 1830 gave a difference of only 3.6 feet. The trigonometrical survey made by the Russian government in 1836-7 gives as the result, the level of the Caspian 101.2 Russian or English* feet (94.9 French feet, old measure) lower than that of the Black Sea.†

The second volume contains a detail of the various chemical analyses of the saline waters, earths and plants collected; barometrical measurements of the seas, lakes, hills, and rivers visited; hodometrical measurements of the distances; an analysis of the map of the Kirghiz Steppe between the Volga and Urál, with historical notices of its earlier condition, and an index of the plants in the steppe near the Caspian.

* The Russians very commonly use the English foot.

† This is mentioned in a communication from Baron A. von Humboldt, in vol. viii., p. 135, of the *Journal of the Royal Geographical Society of London.*

II.—*Aufenthalt und Reisen in Mexico.* [*Residence and Jour-
nies in Mexico between the Years 1825 and 1834, &c.*] By
JOSEPH BURKART. Stuttgart. 1836. Communicated by
MAJOR CHARTRES.

THE vast extent of country comprehended under the name of Mexico is still almost unknown to Europeans in a scientific point of view. The great range of mountains stretching from the river Santiago towards the N., following the line of coast, and inhabited by the Guicholes Indians, has never been explored. Of the manners, customs and language of that tribe we have only a very scanty knowledge. The states of Sonora, Sinaloa, and Chihuahua, have attracted little notice; and the vast extent of country between New Mexico and the United States of America, along the course of the Rio Bravo del Norte, has only been visited by the traders who pass over those regions on their annual journeys from Franklin, on the Missouri, to the Mexican Republic. These few hints may possibly help to direct the attention of travellers to large tracts of country which, as far as physical geography is concerned, may fairly be considered as ground wholly unexplored.

M. Burkart, in the work now before us, has given the result of observations made during a residence of nine years in Mexico. He traversed the country, within a limited space, in various directions, both in his professional character as a manager of mines, in which business he was employed at different times by two English Companies; and, when his immediate duties permitted, he travelled with the direct view of acquiring a more accurate knowledge of the country, and of imparting new information respecting it, particularly with relation to its geology and physical geography. He brought into the field that degree of knowledge which generally belongs to a well-educated German miner, with great perseverance and accuracy of observation; and his work contains a mass of information far exceeding in value anything that has appeared on the same subjects since the travels of Humboldt.

His first destination was Tlalpujahua,* as he had been engaged as chief miner by the company bearing that name, and he reached that place from Europe by way of Tampico.

In his journey from the coast he experienced the want of a good travelling map, which suggested to him the idea of constructing one; and with this object in view, he made use of all the means in his power to collect materials during his journeys and residence in the country. The result has been a road-map, in which the

* N.W. of Mexico: Tlalpujahua (Tlalpujawa) in our map; *x* and *j* having the same sound in Spanish.—Ed.

ivers, streams, towns, villages, farms, single houses, &c., are laid down: it includes 6 degrees of latitude, and $8\frac{1}{2}$ of longitude. In the centre of this map is Guanaxuato, which point was fixed by Humboldt in $21^{\circ} 0' 5''$ N. lat., and $100^{\circ} 54' 38''$ W. long. The author very candidly mentions that his means of laying down positions were limited, with a few exceptions, to compass-bearings corrected by latitudes; but it is to be regretted that the mountain ranges are not indicated on his map.

The author gives a minute description of the district of Tlalpujahua, its geology and mineral productions. His next journey is from Tlalpujahua by Tula to Atotonilco el Chico, Real del Monte, and Pachuca; and he gives a detailed account of the group of mountains in which these mining establishments are situate.

In the course of different journies M. Burkart visited the extinct volcano of Toluca, and the active one of Jorullo, with the country lying in its neighbourhood. In the spring of 1828 he quitted the service of the Tlalpujahua Company, after which he went to the Capital, and from thence to the mining districts of Zimapan, Pechuga, San José del Oro, and then by Queretaro and Zelaya to Guanaxuato. He afterwards travelled over the country lying between Guanaxuato and Zacatecas, visiting in his way the warm-springs of Aguas Buenas and Comanilla—and the towns of Leon, Lagos and Aguas Calientes, thence proceeding by the mines of Asientos de Ibarra to Zacatecas.

Shortly after his arrival in that town, in the summer of 1828, he entered into the service of the Bolaños Mining Company, and proceeded to their establishment at Veta Grande, as chief miner of that district. He continued in this capacity for seven years, and has given a very full account of the mines under his charge, accompanied by tables showing their expense and produce during a period of eight years, and a geological map of the district of Zacatecas, with various sections of the ground. While in the employment of the Bolaños Company he made several journies, and visited the mining districts of Fresnillo, Bolaños, Ramos, Catorze, Charcas, Mazapil, &c., all of which he describes with minute detail. He also gives a very interesting section of the country lying between San Blas on the Pacific and Tampico on the Atlantic. The line of this section lies between $21^{\circ} 30'$ N. and 23° N., and shows in a very satisfactory manner the levels of this part of the Mexican table-land from sea to sea.

A few extracts from this work, relating more particularly to physical geography, will give some idea of its value and of the information it conveys:—

“The Nevado, or Snowy Mountain, called also the Volcano of Toluca, a few leagues W.S.W. of the small town of Toluca, lies, according to

Humboldt, in $19^{\circ} 11' 33''$ N. lat., and $104^{\circ} 6'$ W. of Greenwich,* and 15,263 feet above the sea. On the northern side, at the foot of the Nevado, and at the distance of some leagues from it, is seen the river Lerma, flowing from E. to W. In this direction the lower slopes of the mountain lose themselves imperceptibly in the valley of the Lerma, near the Hacienda of La Huerta, about 2 leagues to the westward of Toluca. The Lerma valley, to the N. of the Nevado, as also E. and W. of that direction, to the distance of more than 25 leagues, is several leagues wide, so that the appellation of an elevated plain is very appropriate: on it are seen the towns of Toluca, Lerma, and Ixtlahuaca, besides several villages and large farms. From the Hacienda de la Huerta, which lies directly N., and at the foot of some lower hills surrounding the Nevado, the distance to the Snowy Mountain, in a direct line, is about 3 leagues. The elevated plain extends itself to the N. and E. from the Hacienda, which, at about 2 leagues N. of La Huerta, is cut by a range of low hills. Many of these, as well as several other isolated ones, assume the form of truncated cones. To the N. and E. the base of the Nevado reaches almost immediately down to the plain: to the S. and W., however, its slopes are connected with important branches of the Cordillera. Fifteen leagues to the N., on the right bank of the Lerma, and directly opposite, is the Cerro de Hacotitlan, a dome-shaped mountain of considerable elevation, and commanding a very extensive view."—p. 186, vol. i.

In his description of his ascent of the Nevado he remarks that the limit of vegetation was at 13,405 feet, after which commenced the line of perpetual snow: this line changes according to the seasons, being generally lowest in the month of January, and highest in September and October. After suffering much fatigue, he found himself on the edge of the crater, 15,076 feet high: this edge was here very narrow, and its interior slope from 35° to 37° . Some rocks, called *Los Frayles*, form at this point the most elevated summit of the mountain, which is 15,263 feet. The crater is divided into two unequal parts by hills: each of these parts contained water, which stood at a depth of 1374 feet under the edge of the crater. This depth, with the extent of the crater, which was about a mile in diameter, will convey an idea of the eruptions which formerly must have taken place in this volcano. The distance of this mountain from the sea coast is 38 geographical miles to the N.E.; and from Acapulco, towards the S., is from 32 to 33 miles. There are no records of this volcano's having been in activity, and very few indications of lavas having flowed from it exist.

The limits of this Journal will only admit of one more extract, and selected from the author's visit to the volcano of Jorullo:—

"From the Rancho de la Playa de Jorullo the principal volcano lies

* In $19^{\circ} 7' N.$, $99^{\circ} 28' W.$ (J. Arrowsmith's Map) Probably M. von Humboldt took Paris as his first meridian.—Ed.

about 2 leagues in an easterly direction. The lava streams, and the up-raising of the ground during the last eruptions in the year 1759, have extended themselves to the vicinity of this rancho; and the ground on this western side, to a distance of $1\frac{1}{2}$ to 2 leagues round the volcano, has been thrown perpendicularly up. By this upheaving a precipitous height of from 30 to 35 feet has been formed round the mountain, which is accessible only in a few points, and on this side cannot be approached without a guide. I examined this raised part of the ground in several points of its perpendicular sides, and found it to consist invariably of a lightish green, not very compact basalt, with many particles of olivine. From the exterior edge of this elevation, towards the principal volcano, the ground rises with a gentle slope, and it is 2890 feet high. This upheaved land was covered, when Humboldt visited it, with thousands of small cones, called hornitos: their temperature was very high, and they threw out watery vapour. In consequence of the heavy rains which fall in this climate, and the increasing vegetation, a great part of the cones, after a lapse of only twenty-four years, since Humboldt's visit, have entirely disappeared, and others have completely changed their form. Very few of them indicate a higher temperature than that of the surrounding atmosphere—and now hardly any of them evolve vapour. Near the edge of the upheaved ground the small cones are chiefly composed of loose, and often porous basaltic lava, containing much olivine in grains, but, more rarely, conchoidal augite.”—p. 227, vol. i.

For a further description of this very interesting volcano the work itself must be consulted; and the following tables will give the heights barometrically measured by the author, and calculated with great care since his return to Europe.

Heights of Places above the Sea, determined by Barometrical Measurement.

I. Various Points in the Districts visited.

Places.	English Feet.	Places.	English Feet.
Acaponeta, village	213	Avaristos, rancho near Guanajuato	7,887
Aguas Buenas, a warm spring, near Guanajuato	6,552	Barranca Dedo, not far from Zimapan	5,518
Aguas Calientes (warm water), city	6,178	Do. Sonjon, near Villa Seca	5,377
Aguilar, farm near Zelaya	5,562	Bariga de Plata, mountain near Catorze	9,936
Amialco, a rancho near Tula	8,684	Buena Vista, on the road from San Blas to Acaponeta	313
Angangeo, house of the German Mining Association	8,519	Bufo of Guanajuato	8,270
Angeles (angels), a mountain near Catorze	10,368	Cadereita, town	6,749
Anonas, rancho	1,343	Calera del Sauce, plain between Zacatecas and Ramos	6,745
Apaseo, a village	5,944	—, rancho in the plain between Veta Grande and Fresnillo	7,064
Arevalo, a mine	7,691	—, rancho near Queretaro	5,669
Arroyo Zarco, a farm	8,317	Cangando, mountain near Encarnacion, not far from Zimapan	9,130
Arroyo de en Medio, rancho near Fresnillo	7,043	Cantera, mountain near Catorze	9,669
Asientos de Ibarra, a mining station	7,064	Capula, village	7,553
Atotonilco el Chico, do.	7,739	Catorze, los Alamos de, mining station	8,785

Places.	English Feet.	Places.	English Feet.
Catorze, Cañada de, amalgam-house . . .	7,022	Jacal, or Nabajas, mountain near Real del Monte . . .	10,416
Charcas, mining station . . .	6,928	Javalí, rancho not far from Rio de las Balsas . . .	984
Charo, village . . .	6,105	Jordana, farm . . .	8,393
Cedral, do. near Catorze . . .	7,528	Jorullo, foot of the volcano . . .	2,890
Chichimiquillas, farm not far from Guanaxuato . . .	6,552	—— N.W. edge of the crater . . .	4,150
Cazadera, do. near San Juan del Rio . . .	7,629	—— N.E. edge of the crater . . .	4,124
Colorados, do. . .	6,050	Lagos, city . . .	6,208
Cornejo, lake and rancho . . .	6,473	Lerma, town . . .	8,558
Comanja, mining station . . .	7,212	—— bridge not far from the farm La Jordana . . .	8,196
Comanilla, bath . . .	6,407	Leon, city . . .	6,006
Cross on the road from Chico to Pachuca . . .	9,339	Manzanas, brook near Real del Monte . . .	9,456
Crucitas, rancho . . .	830	Maravatllo, town . . .	6,735
Dedo, baranca near Zimapan . . .	5,548	Mesa del Cerillo, mountain near Zacatecas . . .	8,938
Dolores, galleries near Catorze . . .	8,685	Mesa da Tlalpujahua, mountain near Tlalpujahua . . .	9,739
—— shaft near Real del Monte . . .	10,060	Mezon de San Pedro, at Zacatecas . . .	7,305
Edificios, ruins not far from Zacatecas . . .	7,407	Mexico, capital . . .	7,426
Encarnacion, smelting-house not far from Zimapan . . .	7,486	Milagros, pit near Catorze . . .	9,150
Escalera, amalgam-house at Guanaxuato . . .	6,870	Milpillas, rancho in the Sierra de San Mateo . . .	7,814
Esperanza, farm not far from Queretaro . . .	6,320	Mingoli, farm . . .	7,340
Estancia de la Vacas, cow-stall on the road from Tlalpujahua to Tula . . .	8,822	Moctezuma, Rio de, stream not far from Zimapan, on the Paso de las Maromas . . .	6,022
Etra, rancho not far from Zacatecas . . .	6,124	Moran, mouth of the galleries at Real del Monte . . .	8,402
Frayles, highest point in the Nevado de Toluca . . .	15,263	Nabajas or Jacal, mountain at Real del Monte . . .	10,416
Fresnillo, mining station . . .	7,227	Naranjo (orange), a rancho . . .	2,286
Gallo, mountain near Tlalpujahua . . .	9,239	Nevado de Toluca, highest rock, Los Frayles (the friars) . . .	15,263
Garcias, rancho de los, not far from Xeres . . .	8,288	Nevado de Toluca, edge of the crater — surface of the lake . . .	15,076
Gilotepec, village . . .	7,842	—— extreme limit of vegetation . . .	13,405
Guadalupe el Carnizero, farm . . .	6,352	Ordesia, shepherd's house on the Nevado de Toluca . . .	11,878
—— convent near Zacatecas . . .	7,475	Oro, San José del, mountaín . . .	8,459
Guajicoria, village . . .	301	Pachuca, mining station . . .	8,114
Guajimalpa, farm . . .	9,474	Palma, rancho near Pinos . . .	6,823
Guajolote, mountain near Real del Monte . . .	9,512	Panuco, smelting-house near Zacatecas . . .	7,621
Guajolote, a rancho . . .	8,914	Paso de Tierra Caliente, rancho . . .	1,851
Guardarey, pit near Comanja . . .	7,650	Pate, warm springs and farm . . .	5,204
Guanaxuato, city . . .	6,869	Patzcuaro, lake . . .	7,075
Hedehonda, rancho . . .	6,664	Pechuga, mining station . . .	5,371
Hocotillan, rancho and warm spring . . .	8,241	Pederal, rancho . . .	6,624
Height between Tlalpujahua and Angango . . .	10,466	Peregrino, pit near Guanaxuato . . .	8,305
Height between Estancia and San Andres . . .	9,423	Popocatepetl . . .	17,773
Height between San Andres and Gilotepec . . .	8,565	Puerto de Casa blanca . . .	7,404
Height between Tandaja and Tula . . .	7,811	Puerto del Campo Santo, near San José del Oro . . .	8,509
Height between Ilguautla and Chico . . .	9,443	Puerto Ismiquilpan de . . .	8,303
Height between Chico and Real del Monte . . .	9,684	Puerto, between the ranchos Majadas and Pilas . . .	6,022
Height between Tlalpujahua and Tepetillan . . .	9,072	Puerto San Pedro, near Xeres . . .	8,671
Huerta, farm near Tula . . .	9,268	Puerto S. Rumo, near Guanaxuato . . .	8,142
Ilguautla, village . . .	7,994	Puerto Santa Rosa, at Guanaxuato . . .	8,932
Indaparapeo, village . . .	6,345		
Ismiquilpan, village . . .	5,584		
——, Puerto de . . .	8,303		
Istlahuaca, or Ixtlahuaca . . .	8,293		

Places.	English Feet.	Places.	English Feet.
Punta, farm at Zacatecas . . .	6,411	San Juan del Rio . . .	6,433
Purissima Concepcion, pit at Catorze . . .	9,824	San Juan, shaft near Real del Monte . . .	9,382
Purissima Concepcion, smelting-works at Chico . . .	7,356	San Juan del Tusal, rancho on the road to Catorze . . .	6,793
Quates, farm at Cadereita . . .	6,696	San Lorenzo, chapel near Tlalpujahua . . .	8,466
Quemada, farm at Villa Nueva . . .	6,537	San Mateo, farm not far from Mexico . . .	7,651
Quemado, Cerro, at Catorze . . .	9,358	San Pablo, farm near Pechuga . . .	4,791
Queretaro, town . . .	6,076	San Pedro de la Boca, village near Xeres . . .	7,163
Ramos, mining station . . .	7,008	San Pedro, puerto, not far from Xeres . . .	8,671
Rayas, head shaft of the pit Rayas, at Guanaxuato . . .	7,270	San Pedro de Tlacuapan, near Tula . . .	6,732
Real del Monte, mining station . . .	8,937	San Rafael, mountain near Guanaxuato . . .	9,078
Refugio, galleries at Catorze . . .	8,668	San Rafael, smelting-works near Aguas Calientes . . .	8,591
Regla, smelting and casting works at Real del Monte . . .	6,610	San Jacinto, farm between Zacatecas and Aguas Calientes . . .	6,453
Rio (stream), Afadio, at Tusantla . . .	4,579	Santa Cruz, farm at Fresnillo . . .	7,007
Rio Grande de Santiago, at Lerma . . .	8,558	Santa Rosa, mountain not far from Tlalpujahua . . .	9,252
Rio Grande de Santiago, near Istlahuaca . . .	8,293	Santa Rosa, shaft of the pit, Rayas at Guanaxuato . . .	7,203
Rio Grande de Santiago, near La Jordana . . .	8,196	Santa Rosa, puerto, not far from Guanaxuato . . .	8,932
Rio Grande de Santiago, on the road from Bolaños to Tepic . . .	575	Tajamanil, farm . . .	2,792
Rio Moctezuma, on the Paso las Maromas near Zimapan . . .	4,769	Tandaja, farm near Tula . . .	7,421
Rio las Balsas, near Sirisicuaro . . .	879	Tarimangacho, mountain at Tlalpujahua . . .	10,186
Rio las Balsas, near the farm Cutio . . .	697	Tecama, village near Mexico . . .	7,206
Rio San Pedro, near Santiago . . .	180	Temascatio, farm not far from Guanaxuato . . .	5,866
Rio Zitacuaro, near Tusantla . . .	2,191	Tepetitlan, farm not far from Tlalpujahua . . .	8,368
Rio Zitacuaro, near Tiquicheo . . .	1,455	Tepesala, mining station not far from Asientos de Ibarra . . .	6,939
Rosa Morada, farm . . .	196	Tiquicheo, village by the Rio Zitacuaro . . .	1,455
Saca Mecate, rancho in the mountains of Xeres . . .	8,321	Tigre, rancho near Villeta de la Encarnacion . . .	6,169
Salinas, village and lake . . .	6,653	Telepango, farm near Tula . . .	6,881
Sancanguerito, rancho . . .	2,409	Tlalpujahua, mining station . . .	8,388
Sanchez, smelting-works near Real del Monte . . .	8,022	Trinidad, pit near San José el Oro . . .	7,956
Sauceda, farm in the valley of Valparaíso . . .	6,939	Trujillo, farm near Fresnillo . . .	6,905
Sauces, Mezon between Lagos and Aguas Calientes . . .	6,157	Toluca, town . . .	8,698
Serena, mountain near Guanaxuato . . .	8,379	Toliman, near Zimapan . . .	4,973
Silao, small town . . .	5,809	Tula, by the Rio Moctezuma, town . . .	6,783
Somera, mountain near Tlalpujahua . . .	9,806	Tulancalco, farm near Tula . . .	7,011
San Andres, village . . .	8,638	Tusantla, village . . .	2,117
San Christobal, mouth of the galleries near Tlalpujahua . . .	8,706	Valladolid, village . . .	6,291
San Esteban, discharging-place at the shaft near Tlalpujahua . . .	8,708	Valparaíso, bath . . .	6,398
San Felipe, village not far from Tlalpujahua . . .	8,341	Villalpando, pit not far from Guanaxuato . . .	8,457
San Felipe, stream between Angango and Zitacuaro . . .	7,305	Villalpando, mountain . . .	9,453
San Felipe, village not far from Guanaxuato . . .	6,909	Villa Nueva, small town . . .	6,281
Santiago, village not far from San Blas . . .	116	Villa Seca, mountain not far from Zimapan . . .	7,148
San Isidro, rancho not far from Catorze . . .	5,833	Zamora, mountain near Ramos . . .	7,763
San José, stream between Tlalpujahua and Angango . . .	8,368	Zimapan, mining station . . .	5,624
San José del Oro, chapel on the mountain not far from Zimapan . . .	8,459	Zitacuaro . . .	6,453

II. Section of the Mountains from San Blas, through Tepic, Bolaños, Zacatecas, San Luis Potosí, and Tula, to Tampico de Tamaulipas.

Heights measured above the Level of the Sea.

Places.	English Feet.	Places.	English Feet.
San Blas, port-town	90	Cacalote, rancho	6,185
Lajitas, rancho	2,552	Xeres, town	6,592
Tepic, town	2,930	Veta Grande, mining station	8,550
Mora, sugar-plantation	2,882	Zacatecas, town	7,978
Pochotitlan, village	2,607	Angel, mountain	8,949
Rio Grande, bed of the river in the road	575	Sauceda, smelting-works	7,530
Paraje de los Bancos	2,880	Ojocaliente, town	6,716
Cuesta de Halica	5,793	Santiago, mountain	8,530
Cuesta de los Huicholes	3,927	La Blanca, smelting-works	6,723
Huasquimia, rancho	3,710	Angeles, mining station	7,474
Height between Camotlan and Huasquimia	7,316	La Palma, rancho	6,823
Comotlan, farm	3,868	Peñon Blanco, mountain	8,917
Mouth of the stream Tlascala into the Camotlan	3,569	Pinos, mining station	7,982
Cuesta de Tlascala	7,323	Cerro de la Cruz, mountain	9,657
Chibo, mountain east of the road	8,900	Sauce Gordo, rancho	6,775
Berberia, rancho	8,130	San Luis Potosí, town	5,961
Bolaños, market-place, cashier's office	3,090	Petitillas, farm	4,829
Bolaños in the despacho	3,173	Guaji, rancho	5,706
Aguila, mountain	5,486	Guadalcázar, mining station	5,236
Pinal, mountain, eastern summit of	7,526	Hincada, farm	3,709
Salitre, village	5,826	Tula, village	3,844
Tototiche, village	6,059	Puerto de los Gallos, mountain	4,604
Atotolco, rancho	5,896	Cuesta de la Contadera	2,790
Cartagena, village	5,330	Santa Bárbara, village	1,134
Colotlan, village	5,560	Rio Limones, stream and rancho	128
Santa Maria, village	5,661	Horecasitas, village*	82
Santa Maria, mountain	7,503	Guallul, rancho	205
		Esteros, small lakes	40
		Altamira, village	90
		Tampico de Tamaulipas, town	50

III. Heights determined in the Mountains of Zacatecas.

1. Valley of Zacatecas.

Places.	English Feet.
Height near Cata de Mulas	8,614
Grube San Bernabe, principal shaft	8,379
Powder-mill of Bracho	8,121
City of Zacatecas	7,978
Smelting-works, Florida	7,745
Granja	7,560
Bermudez	7,673
Stream below the Convent, Guadalupe	7,475

2. Valleys of Leones and Polvorista.

Puerto San Francisco	8,789
Smelting-works, in ruins, Leones	8,203
Polvorista	7,560
Stream in the lower part of the farm of Guerreros	7,422

3. Valley of Sauceda.

Puerto de Veta Grande	8,773
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Places.

English Feet.

Smelting-works, San Tadeo	7,698
Guadalupe	7,564
Sauceda	7,530

4. Valley of Arzola.

Puerto between the mountains of San Felipe and Bismaja	8,316
Junction of the Valleys of Arzola and Anis	7,491
Arroyo Arzola in the plain	7,320

5. Valley of Panuco.

Puerto, near la Virgenes	8,302
Noria, near Buen Suceso	7,676
Bed of a river below Panuco	7,557
Gutierrez, rancho	7,316

6. Valley of La Sacra Familia.

Point where the Aqueduct of Zacatecas begins	8,045
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* This and the four following heights appear not to be entirely free from error, as a high wind caused the barometer to fall very low.

Places.	English Feet.
Smelting-works, Cinco Señores . . .	7,941
Huerta Senguilla de arriba . . .	7,615
— de abajo . . .	7,553

7. Valley of Pimienta and Calabera.

Puerto del Cerro Plomoso . . .	8,548
Bed of a river near the pit of Nueva Valenciana . . .	8,093
Bed of a river . . .	7,845
Plain . . .	7,619

8. Valley la Plata.

Puerto de Malanoche . . .	8,491
Smelting-works, la Plata . . .	8,136
Garden of el Gil . . .	7,888
Plain below the Ladrillera . . .	7,618

9. Valley la Chica.

Puerto de la Veta Grande . . .	8,773
Smelting-works, la Chica . . .	8,236
First house of Hacienda Nueva . . .	7,845
Plain below la Troja . . .	7,642

10. Valley of Bracho and la Pila.

Puerto, near Teposan . . .	8,643
Rancho Bracho . . .	7,810
Plain below the rancho la Pila . . .	7,570

11. Valley of Chupaderos.

Pit Gallega . . .	8,470
Bed of the river above Chupaderos . . .	7,618
Plain below Chupaderos . . .	7,544

12. Valley of Muleros.

Puerto de Armados . . .	8,696
Road from Guadalupe to Panaco, in the bed of the river . . .	8,014
Plain below Muleros . . .	7,514

13. Ridge dividing the waters between the two plains of Bañuelos and Fresnillo.

Highest point on the Mesa del Cerrillo . . .	8,938
Cerro del Viejo . . .	8,229
Shaft of the Aqueduct of Zacatecas . . .	8,045
Cerro del Grillo . . .	8,721
Cerro de la Llamarada . . .	8,552
Cerro de la Malanoche . . .	8,672
Llano de los Loyotes (pit Concordia) . . .	8,580
Cerro del Huachichil . . .	8,890
Cerro Milanesa . . .	8,859
Cerro Armados . . .	8,720
Llano las Virgenes . . .	8,302
Mountain on the road to Matapulgas . . .	7,999

14. Heights of chains and single mountains.

Places.	English Feet.
Cerro Milanesa . . .	8,859
— San Acasio . . .	8,904
— el Angel . . .	8,949
— Miradillo . . .	8,426
— Maestrante . . .	8,459
— Papanton . . .	8,303
— Cantera . . .	8,124
— Guerreros . . .	8,005
— Agua Salada . . .	8,094
— Buenavista . . .	8,532
— San Martin . . .	8,602
— la Bufa . . .	8,859
— del Infante . . .	8,111
— Matapulgas . . .	7,705
— Mesa del Cerrillo, highest point . . .	8,938
— S.E. point of the same . . .	8,916
— las Canteras . . .	7,956
— los Padres . . .	8,385
— las Huertas . . .	8,178
— la Nueva Valenciana . . .	8,392
— la Pimienta . . .	8,248
— San Jorge . . .	8,437
— Plomillo . . .	8,497
— Calicanto . . .	8,894
— Magistral . . .	8,664
— Frijol . . .	8,429
— la Sierpe . . .	8,688
— el Gil . . .	8,513
— la Chica . . .	8,912
— Desierto . . .	8,233
— la Palma . . .	8,109
Pits of Guadalupe, near Veta Grande . . .	8,173
Llano de las Virgenes . . .	8,302
Pit of Descubrimiento . . .	7,825
Cerro del Pilar, near Chupaderos . . .	7,852
— Armados . . .	8,720
— Zapopa . . .	8,071
— Don Antonio, beyond Muleros . . .	8,156
— Carozza . . .	8,039
— San Felipe . . .	7,999
— el Moro . . .	8,000
— de los Tajos de Panuco . . .	7,904
Loma de San Joaquin . . .	7,773
Cerro Tescuco . . .	7,886
— Bisanaga . . .	8,427
— Lechuguilla . . .	7,997
— Palenque . . .	8,460
— Quemado . . .	8,065
— Hornitos . . .	8,081
— Tadeo . . .	8,301
— Saucillo . . .	8,215
— Saucedá . . .	7,983

III.—*Crania Americana; or, a Comparative View of the Skulls of various Aboriginal Nations of North and South America: to which is prefixed, an Essay on the Varieties of the Human Species.* By SAMUEL GEORGE MORTON, M.D., Professor of Anatomy in Pennsylvania College, &c. Philadelphia. 1839. Folio, pp. 296. With seventy-eight lithographic plates, and a coloured map. Communicated by Dr. PRICHARD, M.D.

THE author, who has spared no expense, and bestowed the most exemplary care in securing the accuracy of his delineations, has exhibited in this valuable work specimens of the skulls of all the aboriginal races in America, many of which have now become extinct. He begins by an ingenious attempt to classify them, as will appear from the following abstract.

The American race, he observes, may be divided into two families:—1. The Toltecan, including all the civilised tribes; 2. The American, embracing all the uncivilised nations of the new world, excepting the Polar tribes, or Mongolian Americans. The American family comprehends several subordinate groups.

1. The Appalachian, including all the nations of North America, excepting the Mexicans, and the tribes north of the Amazons and east of the Andes, of which the physical characters are a round head, large salient and aquiline nose, dark eyes, brown not oblique, large and straight mouth, with teeth nearly vertical, and a triangular face. These tribes are described as warlike, cruel, and unforgiving.

2. The Brazilian branch spreads over great part of South America east of the Andes, between the Amazons and La Plata Rivers. In physical traits they differ little from the Appalachian. Their eyes are small, more or less oblique, and set far apart.

3. The Patagonian branch includes the nations from the south of La Plata to the Straits of Magellan, and the mountain tribes of Chili. They are chiefly distinguished by their tall stature, fine form, and indomitable courage.

4. The Fuegian branch, inhabiting the island of Tierra del Fuego, whose national appellation is Yacannacunnee, are in stature low (five feet four or five inches), have a large head, broad face, small eyes, lank black coarse hair, brown complexion, and in mental character are slow and stupid.

General Observations.—The nations east of the Alleghany mountains, with their cognate tribes, have the head more elongated than the other Americans, in particular the Lenapé, the Iroquois, and the Cherokees. West of the Mississippi the elongated head is again found in the Mandans, Ricaras, Assinaboins, and some other tribes; yet, even in these instances, the characteristic truncation of the occiput is more or less obvious, while many nations east

of the Rocky Mountains have the rounded head, as the Osages, Ottoes, Missouris, Dacatas, &c. The same conformation is common in Florida. The heads of the Charibs are also naturally round, and this character may be traced through the nations east of the Andes, the Patagonians and the tribes of Chili. In these skulls, viewed from behind, the occipital outline is moderately curved outwards, wide at the occipital protuberances, and full from those points to the opening of the ear; from the parietal protuberances there is a slightly curved slope to the vertex, producing a conical or rather a wedge-shaped outline. Although the orbital cavities are large, the eyes are small. The nose constitutes one of the strongest and most uniform features; it is arched without being strictly aquiline; cheek bones large and prominent, inclining rapidly towards the lower jaw, and giving the face an angular conformation; long black lank hair is common to all the American tribes. The beard is generally deficient, and the little that nature gives is soon eradicated. The complexion may be generally described as brown, though there are deviations including all the tints from a decided white to an unequivocally black skin. Intellectually the American is inferior to the Caucasian or the Mongolian family. It is particularly deficient in everything relating to numbers.

The Toltecan family embraces the civilised nations of Mexico, Peru, and Bogota, extending from the Rio Gila, in 33° N., along the western margin of the continent to the frontiers of Chili. In North America the people of this family were spread from ocean to ocean; but in South America they chiefly occupied a narrow slip of land between the Andes and the Pacific ocean, and bounded on the S. by the desert of Atacama. Farther N., in the present republic of New Granada, lived the Bogotese: other uncivilised tribes were everywhere dispersed through the country. It is chiefly in their intellectual faculties that the great difference between the American and the Toltecan families consists. There are evidences of the advanced civilisation of the latter in their roads, aqueducts, fortifications, and other architectural remains.

In the desert of Atacama the Peruvians have for ages buried their dead; the soil, a mixture of sand and salt, and the dryness of the climate preserving them from decay; and the bodies of successive generations of the former inhabitants of Peru may now be examined like those from the Theban catacombs, after the lapse of hundreds, perhaps thousands of years. From the examination of nearly a hundred crania from the desert of Atacama, the great sepulchre of the Peruvians, Dr. Morton conceives that Peru has been successively peopled by two distinct nations, who had differently formed heads, one of which is perhaps extinct.

The oldest, antecedent to the Incas, he terms ancient Peruvians, remains of which have hitherto been found only in Peru. In stature they were not remarkable; and they do not appear to have differed from the cognate nations, except in the formation of the head, which was small, greatly elongated, narrow through the whole length, with a very retreating forehead, and possessing more symmetry than is usual in skulls of the American race. The face projected, the upper jaw was thrust forward, and the teeth were inclined outwards. The orbits of the eyes were large and round, the nasal bones salient, the zygomatic arches expanded, and in their skulls there is a remarkable simplicity in the sutures connecting the bones of the cranium. Dr. Morton considers this as the natural form, though it has in some instances been exaggerated by art. Mr. Pentland, an English traveller, who examined the tombs in the neighbourhood of Titicaca, describes them as in design and execution not unworthy of ancient Greece or Rome. In these tombs, as in those of Egypt, parcels of grain were left beside the dead; and it is a singular circumstance that this corn differs from any now produced in the country. From the measurement of three adult skulls of the ancient Peruvians, the average internal capacity is 73 cubic inches; the capacity of the anterior chamber about one-half that of the posterior; the facial angle 67 degrees. The modern Peruvians, whom Dr. Morton supposes to be identical with the Toltecas, who emigrated from Mexico about A.D. 1050, and appeared in Peru as the Incas during the eleventh century, are described as differing little in person from the Indians around them. The face is round, eyes small, black, and rather distant from each other; nose small, mouth rather large, teeth remarkably fine; complexion dark brown; hair long, black, and rather coarse; skull small, quadrangular in form; occiput greatly compressed, sometimes quite vertical, its sides swelled out; the forehead rather elevated, but retreating. These heads are remarkable for their inequality, which consists chiefly in the greater projection of the occiput on one side than on the other.

In the tombs of the chiefs, were deposited their weapons, utensils, meats and drinks; and a number of women, boys and servants were buried with them, to serve as attendants in the next world. Dr. Morton measured twenty-three adult skulls from the cemetery of Pachacamac, a temple of the sun, near Lima, which was reserved exclusively for the Peruvian nobles. The largest cranium had an internal capacity of 89.5 cubic inches; the smallest 60. The mean of the whole series was 73; the anterior chamber 32; the posterior 42; the coronal region 12; the facial angle 75 degrees.

The Mexicans, who were descended from tribes agreeing in

language and manners, and coming from the N.W., are described by Clavigero as of good stature, and well proportioned, with good complexions, narrow foreheads, black eyes, and thick black glossy hair. The narrow forehead, however, does not belong to the ancient Mexicans, as is proved both by their sculptures and their crania. Dr. Morton obtained eight Mexican skulls older than the European conquest. None of them are altered by art; and they present a striking resemblance, both in size and configuration, to the heads of the ancient Peruvians. The Natchez were probably emigrants from Mexico. Of one of their crania Dr. Morton has given two delineations; one in profile, the other a front view.

The Muskogee, or Creek confederacy, is composed of several nations, or remnants of nations, among whom the most prominent at present are the Seminoles; and the skull of a Seminole warrior is here represented: it presents a lofty but retreating forehead, great width between the parietal bones, and a remarkable altitude of the whole cranium; while the drawing of a Muskogee skull represents a broad but low forehead.

The Algonquin and Lenapé nations (grouped by philologists under the collective name of Algonquin-Lenapés) may be arranged geographically in four groups:—1. the northern, embracing the Knisteneaux, or Crees, and their neighbours as far as the Chippeways and the Algonquins proper; 2. the north-eastern, including the Micmaks, the Etchemins, and Abenakis; 3. the eastern or Atlantic group, embracing the Indians from New England to Virginia and North Carolina; 4. the western group, extending from the Miamis to the Shawnoes. These various tribes occupied a wide tract of country, from the Cumberland river, on the south, to the Great Lakes. They all spoke dialects, though often remote, of a single language. In physical character and social habits they were much like each other.

One drawing of a skull of the Chippeways, belonging to the first group, is given; and the general characters deducible from it are those of the American race, but the frontal region presents an unusual development.

The Menominees, belonging to the fourth group, formerly inhabited the country about Green Bay, in Wisconsin; they are a well-formed people, middle-sized, in complexion fairer than their neighbours; their skulls are rather larger than the average of Indian crania, rather oval-shaped, but marked by a gently-flattened occiput. A drawing is here given from the skull of a young woman of this tribe.

The Miamis and Piankeshaws, two tribes, of the same group, speaking one language, from the territory drained by the Wabash, do not in physical character differ from the other western tribes of the great Algonquin-Lenapé stock. In intellectual powers

they yield to no tribes in the west. Some of the Miami tribes have resisted every attempt at civilisation and conversion, and remain uncompromising pagans to this day. Dr. Morton has one plate of a Miami skull.

Of the Ottigamies and Sanks, of the fourth group, inhabiting the banks of the Mississippi, a large skull is here given; the Potomatomies, first group, one skull; the Naumkeags, one of the subordinate tribes of the Lenapé nation in Massachusetts, one skull.

The Delawares (third group), who now occupy the country north of the Kangas, between it and the Missouri river, have skulls more elongated than is usual among the American tribes. Their crania are also narrower, in proportion, in the parietal diameter, and less flattened on the occiput. A drawing of a female skull of the tribe is given.

The Iroquois confederacy consisted originally of five nations—the Mohawks, Oneidas, Onondagas, Cayugas, and Senecas. They called themselves Mengoes, or Mingoës; and constituted the eastern division of this powerful family: while to the west were several other tribes of the same stock—as the Hurons, Erigas, Andastes, &c.; but the latter formed no part of the confederacy.

In 1712, the Tuscaroras, flying from their hunting-grounds in North Carolina, took refuge among the Iroquois, and were admitted as a sixth nation. The language of the Iroquois is energetic and melodious, destitute of labials, but having the guttural aspirate. The remains of this once powerful confederacy are yet scattered through the state of New York, subdued in spirit, and debased by their fondness for intoxicating liquors; they are rapidly diminishing in number, and will soon be known only in history.

Dr. Morton has given the skull of a Cayuga chief, the head of an Oneida warrior, and the head of a Huron chief.

On a comparison of five Iroquois heads, the average internal capacity is 88 cubic inches, which is within two inches of the Caucasian—the average of the anterior chamber, 35·5; that of the posterior, 52·5; of the coronal region, 15.

The Pawnees consist of two nations, the Pawnees Proper and the Ricaras, or Black Pawnees. The former inhabit the country on the river Plata; the latter live below the Mandans, on the Missouri. They do not differ much in physical character from the surrounding nations, but, till lately, offered up human sacrifices—a practice said to be unexampled among the other North American nations. One figure of the skull of a female Pawnee is here given.

The Dacotas, or Sioux, bear an appellation embracing many

tribes of Indians allied to each other by affinity of language and community of customs. They are established on both sides of the Mississippi. A broad face, high cheek-bones, large Roman nose, expanded at the nostrils, wide but low forehead, and flat occiput, with a cinnamon-brown complexion, are their peculiar characteristics. The Dakota language is said to be less sonorous than the Algonquin, which abounds in labials. Many of their religious rites are said to present a striking coincidence with the manners of Asiatic tribes. One skull is here given. The small squared head, the great comparative breadth between the parietal bones, and indifferent frontal development correspond with the features already noticed.

The Osages, now chiefly found in the western part of Arkansas, are yet a powerful tribe. They and their immediate neighbours in the western prairie are much less ferocious than those to the east of the Mississippi. A drawing from the skull of a young warrior is given. Measurements of eleven skulls of Missouri tribes give 77 degrees as a mean of the facial angle; mean internal capacity, 80 cubic inches.

The Blackfoot nation is one of the most powerful in the north-western region; it yet numbers 30,000 souls, and consists of three divisions, of which the Cotomay is the best known; they are fierce, crafty, and courageous. One figure from a Blackfoot skull.

The Flathead tribes of the Columbia River. These tribes are established on both sides of the river, to a distance of many miles from its mouth. They are commonly of diminutive stature, and badly made. The complexion rather lighter than that of the Indians of the Missouri: a wide mouth and lips thick; nose of a moderate size, fleshy, wide at the extremity, with large nostrils, and generally low between the eyes, which are commonly black, are their chief characteristics. The most remarkable feature is the almost universal flattening of the head by various mechanical contrivances. The type of this deformity is the same throughout, consisting in a depression of the forehead and consequent elongation of the whole head, until the top of the cranium becomes, in extreme cases, a nearly horizontal plane. This custom prevails among the Klickatats, Kalaproyahs, and Multuornahs of the Wailamut river, and the Chinouks, Clatsaps, Klastonis, Cowalitsks, Kathlamets, Killemoos, and Chelakis of the Lower Columbia and its vicinity. It is also said that several tribes of the coast, both north and south of the river, follow the same practice; but they are all represented as speaking dialects of the Chinouk language. A constant pressure is applied to the skull of the infant during the first four or eight months. Dr. Morton gives a figure of their cradles, and a minute description of the various contrivances used. Besides the depression of the head, the face is

widened and projected forwards by the process, so as to diminish the facial angle; the breadth between the parietal bones is greatly augmented; and a striking irregularity of the two sides of the cranium almost invariably follows; yet the absolute internal capacity of the skull is not diminished, and, strange as it may seem, the intellectual faculties suffer nothing. The latter fact is proved by the concurrent testimony of all travellers who have visited these tribes. They evince a great deal of cunning and contrivance in bargaining, in which respect they differ from almost all other Indians, who will generally exchange the most valuable article they possess for any bauble which may happen to please their fancy. There are two plates of Chinouk skulls; one (a slave's) of the natural form, the other a chief's, exhibiting the artificial distortion. There are also figures of six other flattened skulls belonging to the various tribes. From eight of those from tribes near the Columbia Dr. Morton gives the following average measurements:—

	Cubic inches.
Internal capacity - - - -	80
Capacity of the anterior chamber -	31·8
Capacity of the posterior chamber -	46·8
Capacity of the coronal region -	11·8
Facial angle, 70 degrees.	

It therefore appears that the operation of flattening and otherwise distorting the head in infancy by artificial contrivances does not diminish the capacity of the cranium, or the whole volume of brain; nor does it materially affect the relative proportions of brain in the two chambers of the cranium, inasmuch as the lateral expansion of the frontal region compensates for the loss of vertical diameter. The coronal region, however, is very much reduced by the process, and the facial angle is diminished at least five degrees.

Skulls from the Tumuli or Mounds.—In North America there are very few mounds east of the Alleghany mountains. Throughout the valley of the Mississippi they are numerous; they are found as far north as the vicinity of Lake Travers, in lat. 46°. They are observed up the Ohio and its tributaries to the base of the Alleghanies, diminish in frequency west of the Mississippi, and are not seen beyond the Rocky Mountains. To the south they are common in Arkansas, and in Mexico very numerous. In Peru and its ancient dependencies they are also in great numbers, and occur even as far south as the country of the Araucos, in Chili. Most of them are merely circular mounds of earth, from 12 to 20 or 30 feet in diameter, and 6 or 8 feet in height; others are of large dimensions and imposing appearance; but the most curious are those constructed in rude resemblances of men and animals, which abound in the Wisconsin territory, and these also

are proved to be sepulchral monuments by the quantity of human remains found in them.

These mounds are variously shaped—circular, elliptical, and pyramidal, while some of them are formed in parapets, like the pyramid of Meidoun, in Egypt. In some of them many skeletons have been found together, regularly disposed. The pyramids at Teotihuacan, north of the city of Mexico, are situate on a plain called Micoatl; *i. e.* “the path of the dead.” In Peru the mounds are called “huacas,” which in the Quichua language signifies “to weep.” Besides human remains, these mounds often contain the bones of bears, otters, beavers and other animals; together with stone hatchets and arrow-heads, vessels of various kinds, fragments of obsidian and mica; and, more rarely, implements of copper and ornaments of ivory. It is also not unusual to find ashes, cinders and burnt bones, resting on a stone platform; showing that the body had been consumed by fire.

Figures are given of three skulls from tumuli from the Ohio, the Upper Mississippi, and the Grave Creek mound in Virginia—one from each. The last, one of the largest and most perfect in North America, is 837 feet in circumference at its base, and 70 feet in height, and is placed on a natural elevation of 80 or 100 feet above the low-water mark of the Ohio. Several skeletons were discovered in it—some in a sitting, others in a standing posture—together with a variety of trinkets and ivory beads, sea shells, and small plates of mica. From the Alabam river, from Tennessee, from Santa, in Peru, one skull from each is here given; and two from the valley of Rimac, in Peru, complete the number mentioned above. All these have the low forehead, high cheek-bones, small facial angle, massive lower jaw, prominent vertex, flat occiput and rounded head of the American race; and the mounds are scattered over those parts of North America which were inhabited by the partially civilised nations included in the Toltecan family. Skeletons in the sitting posture are everywhere characteristic of these tumuli; and so recently as the middle of the last century mounds were constructed as sepulchral monuments in Peru. The mean internal capacity of three heads, which had been distorted by some of the processes already mentioned, is 81 cubic inches: the facial angle does not exceed 75 degrees.

From a review of all the circumstances connected with them, Dr. Morton concludes that these ancient mounds owe their origin to the various branches of the great Toltecan family, which was spread from the confines of Chili to the shores of Lake Superior. That members of it once occupied Florida and the valley of the Mississippi there can be no doubt; but whether before or after their dispersion from Mexico is not yet ascertained. It seems more than probable, however, that the Alligewi, who, according

to Indian tradition, were driven southward by the Iroquois and Lenapé, were Toltec communities, who constructed the mounds for their sepulchres, and erected fortified towns to defend themselves from the barbarous tribes by whom they were surrounded.

Many of the American nations used to deposit their dead in caves; and figures of two skulls from caves—one in the Illinois, one near the Ohio—are among the plates in this work.

The Charibs were at one period a numerous and widely-disseminated people. Their native seats were the northern regions of South America, almost from the river Amazon northward to the sea, including the great valley of the Orinoco, and much of the present territories of Guyana and Venezuela. Thence they extended their migrations to all the Antilles, from Trinidad to Santa Cruz. They are still a numerous people; and are said to differ from the other Indians, by being taller, and having more regular features; noses not so large, and less flattened; cheek-bones not so high; and a character of face with less of the Mongol cast. Their heads are naturally round, as in the other tribes; but many of the Charib nations practised the flattening process. There are here two plates of their skulls; one of a Charib of Venezuela, and one of a Charib of St. Vincent. The Charibs of St. Vincent are described as among the most ferocious and brutal of the American nations. They were cannibals; and having tasted the flesh of all the nations who visited them, are said to have pronounced the French the most delicate, and the Spanish the hardest of digestion.

The Araucanians, the most celebrated and powerful of the Chilian tribes, inhabit the regions between the rivers Bio-bio and Valdivia, and extend from the Andes to the sea. Their name is derived from the province of Arauco. They are robust and muscular, and of a lighter complexion than the surrounding tribes. Endowed with an extraordinary degree of bodily activity, they reach old age with few infirmities, and generally retain their sight, teeth and memory unimpaired. They are brave, discreet and cunning to a proverb; patient in fatigue, enthusiastic in all their enterprises, and fond of war, as the only source of distinction. Three centuries of almost constant warfare have neither subdued nor tamed them; and although occasionally driven to their mountain fastnesses, they have always reappeared as formidable and unconquerable as ever.

They are highly susceptible of mental culture, but despise the restraints of civilization; and those who have been educated in the Spanish colonies have embraced the first opportunity of resuming the haunts and habits of their nation. They possessed some of the useful arts before their intercourse with Europeans.

There are two figures of the skull of an Araucanian chief, named Bashpuni, who was slain in 1835. The head is symme-

trical; the frontal region lofty, but narrow; the posterior cranium full; and the internal capacity not much short of the Caucasian: mean 84.5 cubic inches: the facial angle 76°.

Another and smaller cranium of a chief named Chilicoi, killed in the same battle, is also given. Three Araucanian skulls in Dr. Morton's possession give a mean internal capacity, 79 inches: mean facial angle barely 75°.

All the American tribes, both civilised and uncivilised, bury their dead in a sitting posture. Plate 69, at the end of the volume, shows the attitude of a desiccated body which was brought from New Granada. It is sitting, with its knees drawn up, and its face resting on its hands.

A table of anatomical measurements of the different skulls is added at the end of the volume. They are classed and compared together, from which it appears that the uncivilised nations possess a larger brain by $5\frac{1}{2}$ cubic inches than the Toltecs; while, on the other hand, the Toltecs possess a greater relative capacity of the anterior chamber of the skull. The coronal region, though absolutely greater in the uncivilised, is rather larger in proportion in the civilised tribes; the facial angle is much the same in both, and may be assumed for the whole race at 75 degrees.

From all these facts the author concludes, 1st, that the American race differs essentially from all others, not excepting the Mongolian; nor do the feeble analogies of language, and the more obvious ones in civil and religious institutions and the arts, denote anything beyond casual or colonial communication with the Asiatic nations; and even these analogies may perhaps be accounted for, as Humboldt has suggested, in the mere coincidence arising from similar wants and impulses in nations inhabiting similar climates. 2ndly, that the American nations, excepting the polar tribes, are of one race and one species, but of two great families, which resemble each other in physical, but differ in intellectual character. 3rdly, that the cranial remains discovered in the mounds, from Peru to Wisconsin, belong to the same race, and probably to the Toltec family.

The beauty of its execution would alone render this work deserving of notice; but when the care and accuracy of the observations made by its author, and the learning, ingenuity and skill manifested in his deductions from the data before him, are taken into the account, together with our previous ignorance of the subject of his inquiries, few, if any, of his readers will hesitate in affirming that his book well deserves to be generally known, and to find a place in every library connected with natural science.

IV.—*Kaschmir und das Reich der Siek* [*Kashmír and the Kingdom of the Sikhs*]. By Baron CARL VON HÜGEL. 4 vols. 8vo. Vienna, 1840. Communicated by Captain WASHINGTON, Royal Navy.

NUMEROUS as are the travellers and tourists in the present day ready to take advantage of every opportunity for exploring fresh countries, and active as has recently been the progress of geography in most parts of the world, it seems strange that Central Asia, or rather the northern frontier of British India, should have been, comparatively speaking, for the most part overlooked; that while one extremity of the great Asiatic Meridian rests upon the southern foot of the Himálaya range, all beyond these mountains should be either unknown or so inaccurately known as to render it almost impossible to lay down the countries on our maps—even such places as Islámábád, Láhór and Kashmír, names “familiar as household words,” have hitherto been some miles in error in *latitude*; while the countries immediately beyond, affording a boundless and interesting field for investigation, as that between Russia and India to the west and north, and between India and China to the east, are almost a blank on our maps. What, for instance, in modern times do we know of Kókan, of Káshghar, or Yárkand? What of Great, or even Little Tibet? We do not forget—what geographer can—the names of Elphinstone, of Fraser, of Burnes, of the Gerards, of Lloyd or of Conolly—and we willingly concede to them the merit of having traced a luminous path throughout the countries they visited; but it is to the government of British India we look for a systematic and complete examination of its frontier; that whether actuated by a desire for the diffusion of useful knowledge, or for the promotion of its own commercial and political interests, it should turn to account the vast resources it has at its command—the talents of the numerous officers which adorn its service—for the purpose of dissipating the mist which still envelopes the geography of Central Asia.

Such expressions might almost seem misplaced, when we have lying before us four highly respectable works relative to these regions; yet all of them (with perhaps one exception) entirely independent of the Indian government.

First comes the excellent journal of the lamented Moorcroft and Trebeck, edited by Professor Wilson, whose critical judgment and additional notes have nearly doubled the value of the original; illustrated, moreover, by an admirable map by Mr. John Arrow-smith.

Secondly, the journey of Mr. Vigne by Kábul and Kashmír to Iskárdoh, enriched by beautiful drawings of these cities.

Thirdly, Lieut. Wood's route to the sources of the Oxus, which he found in the elevated plain of Pamír, and whose description fully corroborates that of old Marco Polo in 1480—and

Lastly, the work of which the title stands at the head of this page, which is not inferior to any of the preceding in geographical interest, with the additional advantage of giving a detailed account of the natural history of the countries the author passed through.

Quitting Europe in 1831, Baron Charles von Hügel visited Syria and Egypt, and reached Bombay in the spring of 1832. He then travelled through the peninsula of India, visited Ceylon, the Easter and Society Islands, Australia, New Zealand, and arrived at Canton in 1835. Returning thence to Calcutta, he examined the northern provinces of India; and after a stay of three months in the British Himálaya, crossed the Satlej at Beláspúr to Kashmír, which he reached in November of the same year. Making a circuit by Attak, he recrossed the Satlej at Lud'hyánah to Delhi,* and arrived at Bombay in May, 1836.

The preface and introduction to his work on Kashmír shows that it was not the mere pleasure of roaming that induced the author to travel over more than half the habitable globe, but in order that he might enlarge the sphere of his ideas by studying mankind in their various states of civilisation, and enable himself to arrive at legitimate results from a comparison of the manners and customs of the different people he visited. The traveller then describes the several sources whence information respecting Kashmír is to be obtained from the chronicle of Rájá Táranginí downwards, including all oriental, as well as European, authors; and among the latter he gives full credit to Bernier (1665) and Forster (1783).

The first volume contains Baron von Hügel's journey, in the diary form, from Simlah to Bárahmulah, with a picturesque description, and woodcut of crossing the Satlej at Belás-púr into the Panj-áb; this being the first or most eastern of the five rivers whence this district takes its name. At Hari-púr the traveller speaks with delight, as a botanist, of the home of the ever-blowing rose, which he found amidst *thickets* of *jasmin grandiflorum*.

Throughout, the narrative is simple, it evinces an intimate acquaintance with Indian character and customs, and is evidently the faithful expression of what the author saw and felt. On the 15th November the traveller reached the Pír Panjál pass, which rises 12,952 ft. above the sea, and descended through the magnificent natural rampart of the Himálaya into the peaceful and picturesque valley of Kashmír.

The second volume contains in twenty-four chapters everything relating to Kashmír; its name, its history (the first part taken

* Properly Dihlí.—Ed.

from the translation of the *Rájá Táranginí*, by Professor Wilson, whose merits are thankfully acknowledged); the geographical position of the town, laid down in lat. $34^{\circ} 7' 30''$ N.,* long. $75^{\circ} 9' 30''$ E. of Greenwich; and at an elevation, by the temperature of boiling water of 5818 ft. above the sea. The mountains and rivers, from the Satlej on the east to the Attak on the west, are described in the fourth chapter, which, as well as the following, enumerating the twelve passes into the valley, are a valuable addition to physical geography; the latter we would gladly extract had not the author kindly communicated the substance of it to this Journal, on his return to Europe in 1836.† The sixth and subsequent chapters contain a description of the valley, rivers, and lakes, among which Wuler‡ is stated at probably 20 miles in length by 9 in average breadth;§ the climate, boundaries, present state, chronology, money, weights, measures, and natural productions of Kashmír, with remarks on the adjoining countries; the last is a chapter full of interest to all who love natural history. Then follows a statistical account of the manufactures, system of taxes, imports and exports, trade, income, expenses, and population; the last item is stated at 200,000 for the valley, which a few years ago was said by Moorcroft to contain 800,000: the town may contain 40,000 persons.

The succeeding four chapters comprise an account of the religion and superstitions, giving a clear notion of the Brahminical as well as of the Buddhist, Sikh, and Mohammedan faith; the manners and customs of its inhabitants; its monuments, with various plans, &c., and showing the little foundation there is for thinking them of such antiquity as to throw doubts on the received chronology—and lastly, the author's concluding remarks, which well deserve the attention of all connected with India—they point out the misery that prevails owing to misrule in a beautiful and fertile country, and touch upon the great improbability of an army from the north being able to penetrate by Iskárdóh and Badakhshán.

The limits of this Journal forbid any more than an extract from the Sixth Chapter, describing the beauties of the celebrated vale of Kashmír.

* $34^{\circ} 4' 30''$ N. by Trebeck's observations. Baron von Hügel's longitude agrees exactly with that deduced by Mr. John Arrowsmith.

† Vol. vi. p. 343, *et seq.*

‡ U'ler in *Ayín Akberí*; *Súbah of Kashmír*. Gladwin's version, ii. 129, Svo. Gladwin seems to have called it Auler or O'ler.]—Ed.

§ From the original routes of various travellers, among others those of Baron von Hügel, which were kindly communicated to him, Mr. Arrowsmith has fixed the length of Wuler lake at $10\frac{1}{2}$ geographical miles, with an average breadth of $4\frac{1}{2}$, which will probably be found very near the truth. Trebeck gives the latitude of its centre $34^{\circ} 20'$ N. Of course all travellers will be aware that we still need repeated observations for the latitude, longitude and elevation of Kashmír.

"The valley of Kashmír is bounded on the southern side by gently-rising declivities; the descent of Pir Panjál is covered by the most luxuriant vegetation; and the eye rises gradually from the magnificent forms and colours of the ever-heightening hills, till it rests on the snowy peaks of the highest mountain chain. On this side, between the gently-diminishing ranges of hills, lie greater and less valleys, in the centre of which flow the purest mountain streams, which, higher upwards, form numerous cascades. This is the romantic district of Kashmír. From the little open plains, covered with southern vegetation, the traveller arrives on the banks of a river which winds through the deep fertile soil. The valley narrows the further he advances, and the mountains approach each other more nearly the higher they become. The charms of the vegetable world are then more attractive to an European, as they develop themselves more closely allied to those of his distant Fatherland.

"Apple, plum and apricot trees, encircled by vines, here grow wild. Elms and willows conceal the banks of the river, the course of which may be traced by its murmuring over its rocky channel. White-thorn and spindle trees (*euonymus*) surround wide-spreading maple and limes or enormous chestnut trees, under whose shade the lily and narcissus, larkspur and aconite blossom, together with the lilac and the rose.

"Nearer to its source, the river changes into a foaming cataract, rushing over dark rocks. Here begins the region of the pines, from the majestic déodár (the cedar of the Himálaya) to the fir and other varieties of that tribe. Still higher, the river divides into many streams, which flow through narrow gorges, and, lost in the white foam of the cataract, fall into the abyss below.

"Alpine plants, many species of rhododendron and daphne, here begin at the foot of the alder and birch, which bend beneath the weight of snow; and after these a strange vegetation, slightly elevated from the soil, appears on a plain already situated in the regions of eternal snow.

"Arrived on the height, the traveller sometimes treads firmly on the encrusted snow, sometimes clambering over uncovered stones; carefully ascertaining with his staff that the loose snow conceals no unseen precipice, he reaches one of the high peaks, where an incomparable view presents itself.

"To the south, on this side, the eye is directed to the bare and frowning precipices of the Pir Panjál, and then far distant, over more than twenty valleys and mountain-ranges, to the plain of the Panj-áb, glowing in the golden mists of an Indian world.

"To the right and left lie snow-covered plains and hills, rising over each other in endless succession; and nothing is visible for a much greater distance than the eye can discern but the chill regions of eternal winter, various in form, yet dreary in its still monotony. The valley in a northern direction presents a charming contrast. The gently-declining hills guide the eye to the lower plain, which, covered by a rising vegetation, interspersed by groves and villages, divided by alleys and canals, gleams in the light of the morning sun. The Jélam flows proudly through the centre, its banks studded by towers, castles, and palaces.

"On the other side of the valley the mountains rise in bold forms—

the snowy whiteness brings the highest point nearer to the eye than the lower declivities—the snowy hills there appearing to enclose the plain like a wall. Over these the previously mentioned Jamál rises nearly at each end of the valley; and the white and black double pyramid of the Mer and Ser, like a monument of creation when God divided the day and night. But on these heights, which rise more than 15,000 feet above the level of the sea, the first moment alone is agreeable. The air here is so rarefied, that a painful head-ache is the consequence even of a short stay, which, increasing every instant, lasts long after the descent to the plain. To the southern side of the valley of which we have spoken the zoologist and botanist must direct his steps, either to discover new objects or to admire those already known in beauty never before witnessed.

“Here the thickest woods are mingled with open plains, and the traveller neither finds trees levelled by the axe, nor the countless flowers pressed by the footsteps of a living being.

“There absolute stillness reigns. The treasures of vegetation, the loveliest forms of nature are there prodigally amassed without an intelligent spirit to be gladdened by their beauty. The brook flows noiselessly along; no air rustles through the motionless leaves, and the deep silence is only broken by the sweet tones of the blue thrush, and of the bulbul (the nightingale of Kashmír). These approach man fearlessly as in the days of Paradise, and are his faithful companions in his lonely pilgrimage.

“The deep fertile soil in the lateral valleys is uncultivated; the great plains in the principal one have been long sufficient for the nourishment of the population. The northern side of the valley under the hills of Thibet is very different from the south side already described; the hills rise suddenly to a considerable height, offering an extensive field to the geologist. Few trees grow on this side, and the rivers form in their wide stony channels an unbroken cataract—the banks similarly covered with stones rolled from their bed, are perfectly bare—hardly a blade of grass is to be found. Stones are heaped over stones; rocks piled on each other almost without vegetation.

“The ascent on this side of the hill is very difficult after the first few steps; the rocks consist of huge masses, the oblique direction of which, in many places offers no secure footing to the steps of the traveller. The valley is hardly to be seen from the highest point, as it lies concealed by the first perpendicular mountain range. Nothing is seen on all sides but snow-capped summits.

“I know of no prospect so melancholy as this is—no tree, no bird, no living thing is to be seen—a silence almost fearful reigns in these mountain fastnesses; and the name ‘ran’ (wilderness), which the natives bestow on these regions, is very applicable.

“On the heights below the highest peaks, close to the snow-line, saxifrage and juniper are found at a height of 15,000 feet; lower down birch; then fir and pines occur. The mines of Kashmír lie on this side. It is a very remarkable peculiarity, that on the southern declivity, in the temperate, almost cold, climate of Kashmír, the few plants appearing there belong to the scanty vegetation of the north; whilst on

the northern side, towards Kashmír, the hills, even to a considerable elevation, are adorned with a growth belonging to the luxuriant south. A geological formation occurring in the valley, and one not easily explained, consists in an isolated hill, whose summits form partly a horizontal plain, and partly a surface inclined towards the centre. Their height varies between 200 and 300 feet, and their circumference is very different. All these isolated hills, with one exception, consist of a sandy alluvial soil, without stones, and the declivities towards the plain are quite perpendicular, with deep chasms in parts, rent by the descending torrents.

“One elevated peak in Kashmír is an exception to all the other isolated hills. It forms one of the most charming views from the town of Kashmír; and is called by the Hindús ‘Hari Parvat’ (Hari’s Mountain). The true name, however, is *Hiranya Parvat*;* in Sanskrit, ‘The Golden Mountain:’ probably on account of the reddish yellow colour of the stone of which it consists, which gives it the appearance of constantly reflecting the sun’s rays. No blade of grass, however, grows on the Golden Mountain.

“On the south side of the valley are many large tracts, which are covered with water in spring, which is the rainy season, and continue marshy throughout the year. There are, however, no relics of the former lake; but as the channel of the Jélam is now elevated, they are lower, or at least only of equal height with it, and consequently the waters cannot flow back into the Jélam.

“If an increase of arable land is required in the valley, it may be procured by heightening the soil, which can be effected by leading the Jélam through it.

“The lake near the capital, called in Kashmír, *par excellence*, ‘The Lake’ (Dal) is not filled up like many of the other lakes in the valley. The Jélam does not flow through, and no other river empties itself into it: its gradual filling up is effected by the plants which grow in and near it.”

The third volume contains the author’s journey from Bárah-múláh to Attak, and by Láhór to Lud’hyánah, when he again crossed the Satlej; also a description of Ranjít Singh and his Court, and a history of the Sikhs. The last volume is devoted to scientific dissertations; it also contains the astrological system of Kashmír, and a glossary.

Besides several wood-cuts, the work is illustrated by a map by Mr. John Arrowsmith, extending from Kábul on the west to Ródákh in the east, on the scale of $3\frac{1}{2}$ inches to a degree; combining, we believe, every piece of geographical information relative to these countries that has reached Europe; it is therefore a manifest improvement upon all former maps of that region.

* Bernier and Forster incorrectly translate the name “*Hiranya Parvat*” as “Green Mountain.” [Probably *Harit Parvat* was the name they heard. *Hari* is an epithet given to Vishnu and Siva.—Ed.]

V.—*The Practice of Navigation and Nautical Astronomy.* By H. RAPER, Lieutenant, R.N., Secretary to the Royal Astronomical Society. Communicated by Captain WASHINGTON, Royal Navy.

THIS work, of which the first volume is before us, is intended, as appears from the preface, as a complete system of Practical Navigation and Nautical Astronomy. The present volume is for the use of seamen or such other persons as are provided with those instruments only, which can be used on board ship. The author has excluded everything not directly bearing on the subject, as marine-surveying, and other matters usually admitted into the course of instruction of persons intended for the Sea. In consequence of such omissions, for which the author states his reasons in the preface, he is enabled to treat the real business of the navigator, or other person concerned with the determination of latitude and longitude by the sextant or circle, with more minuteness of detail than in most other works. The chief points in which this work is an improvement upon all former books on navigation are—

1st.—That all necessary information is furnished to the seaman on the subject of Local Magnetic Attraction.

2nd.—The highly useful Problem of determining the Latitude at sea, by the reduction of an Altitude to the Meridian, will be found greatly abridged; and a Table is added for the purpose of showing within what limits the result may be depended upon when the time is in error.

3rd.—The approximate Solutions of Double Altitudes, and likewise of Lunars for common use at sea, are new, and will, it is presumed, be found most convenient in practice.

4th.—In the Tabular Part of the work will be found much that is new, and, it is hoped, useful: for instance, the table for the resolution of Spherical Triangles by inspection; a table of the Square of the Depression of the Horizon, by which problems relating to the distance of high land at sea are reduced to mere addition and subtraction,—with some others. The Logarithms of the Apparent Time are given, for the convenience of this constant computation, to every second of the twelve hours, with a scale of the arc.

Of the scope or purpose of the entire work, we cannot give any account until the appearance of the second volume, which, besides the theory or mathematical investigations of the whole, will con-

tain the methods of finding the Latitude and Longitude on shore by fixed instruments, or those, we suppose, called by the French *à bulle d'air*. The chief interest which this work possesses in a geographical point of view, arises from the labour which the author has imposed on himself of examining the connexion of all the maritime positions, and deducing the longitudes from new combinations of all the existing data on certain principles: the result of which appears in Table viii. of this volume. An outline of the plan was given in Mr. W. R. Hamilton's Anniversary Address to this Society in May, 1839.

The publication of the series of papers constituting the discussion of the positions in the *Nautical Magazine*, which was interrupted by the publication of the present volume, has not yet been renewed. We call attention to these positions, because the author's system (of adopting fundamental astronomical points and arranging the chronometric differences from these, without the mixture, where it could be avoided, of astronomical observations) is, we are persuaded, the only certain method of advancing to an accurate and properly connected arrangement.

The author observes (Preface, p. x.) :—

"The numerous chronometric measures furnished of late years have rendered it necessary to deduce longitudes in a more systematic and accurate manner than that hitherto followed, which has chiefly consisted in modifying former determinations by means of those succeeding them. *Absolute* or astronomical positions, and *relative* positions, being distinct things, and the latter being by far of the greater consequence to navigation, it is necessary, preparatory to a complete and final arrangement, to separate these two kinds of determinations. Accordingly, in a series of papers, some of which have been already published in the *Nautical Magazine*, I have endeavoured to arrange the chronometric differences of longitude with reference to certain fixed points, convenient for the purpose, which it is proposed to call *Secondary Meridians*. These standard positions, of which the number assumed is eighteen, being considerably distant from each other, are determined nearly enough for present purposes, and would, according to the system proposed, be finally settled by long series of astronomical observations."

And in a foot-note he adds :—

"The data or evidence for the several positions being given in the above-mentioned papers, the value of each determination is easily appreciated : and accordingly, individuals in possession of one or more good watches may, by correcting defective measures, or by establishing new links of connexion, render material service to maritime geography."

It is manifest from the above brief extracts that a more valuable contribution to the advancement of positive geography has

seldom been made, and we cordially recommend it to all seamen as the most complete work on navigation and nautical astronomy yet published. We hope too to see this book adopted in all our nautical schools, and issued to every ship in Her Majesty's service. Why should it not take the place of the bulky tables of Mendoza Rios, at present supplied to all the ships in the fleet, and which, it may be safely affirmed, are not opened once in a voyage on board the greater part of Her Majesty's Vessels?

And now that the examination of geographical positions has been begun in earnest and in the right manner, we may venture to express a hope that geographers in this country will not let the subject fall to the ground, but combine their efforts to produce as accurate a table of positions as our *data* will admit of—materials are far from wanting, and an example has been well set by M. Daussey in his valuable Table of Positions, appended to the *Connaissance des Temps*, and which by his annual *Additions* he endeavours to keep on a level with the latest determinations.

Such a work is not to be lightly entered upon, but the difficulties, though great, are not insurmountable if resolutely grappled with; and we cordially hope that some competent person may be found to undertake the work, assured that no more valuable service could at the present moment be rendered to geography.

VI.—*Reise in Abyssinien*. Von Dr. EDUARD RÜPPELL. 2ter Band. Frankfurt-am-Main. 1840. 8vo. *Travels in Abyssinia*. By Dr. EDWARD RÜPPELL. 2nd vol. 8vo.

THE first volume of this work, published in 1838, having been already announced in the "Geographical Journal" (vol. ix. p. 490), it will be unnecessary to enter into any details as to the plan and object of the author's journey, or to enlarge upon the many talents and acquirements indispensably requisite to form a scientific traveller, which are possessed by him in no ordinary degree. In this as in the former volume, Dr. Rüppell has happily shaken off that extreme dread of making himself the hero of his story, which withheld him in his first publication, from mentioning those personal incidents, those perils and adventures by sea and land, which are sure to befall the traveller "in a strange country," and which, while they excite the reader's interest in his progress, give the clearest insight into the civil and moral condition of the people among whom he sojourns. It is that defect which has rendered his *Travels in Kordofan* one of

the most trustworthy and instructive narratives ever written, so dry and technical, that no bookseller has yet been found willing to venture on publishing an English translation of it, though a version of it was completed by an able and estimable man of science soon after it first appeared in Germany.

To return, however, to the present work: its contents may be arranged under five different heads. 1. A visit to the Abyssinian Alps in the mountains of Simén (Samén). 2. A residence at Góndar, during which the political and civil state of Abyssinia was investigated. 3. An Excursion to the Kulla or Kolla, "the hottest part of Abyssinia" (Bruce, vol. vii. p. 176). 4. A visit to the celebrated Cataract of the Nile, at Alata. 5. A Residence at Aksúm, on the author's return to Musawwa. Of these divisions, the second and last give a very complete account of the people of Abyssinia and of the political commotions by which that country has been rent for more than half a century. The other divisions are almost exclusively devoted to Natural History, the favourite pursuit of the learned and enterprising author—whose additions to our knowledge in various branches of Natural Science, particularly Zoology, are too well known to require further notice in this place. A sketch of the Abyssinian History, from the commencement of Tekla Haïmanót's reign to the present time; a catalogue of books purchased in that country and presented with the author's wonted liberality to the Public Library of his native city, and the data of astronomical observations made during his stay in Abyssinia, form a sort of appendix to the narrative, and furnish the most authentic materials for the literature and geography of the country visited, which have appeared since Dr. Murray published his valuable and critical edition of Bruce's *Travels*.

The plates, which are faithful representations of the objects delineated, give the reader a just idea of the Abyssinian costumes, of their public buildings, and of the scenery in their Alps, in regions where perpetual snow is found almost under the Line. The antiquary will derive much instruction from plate 8, containing figures of Abyssinian coins of various ages, which mark their progress from the use of the Greek to that of the present alphabet, and appear to confirm the ingenious theory of Dr. Murray (Bruce's *Trav.*, vol. ii., p. 348): late discoveries, however, in Arabia, of Himyarí inscriptions, bearing a close resemblance to the Ge'ez or Ethiopic, but containing letters not found in it's alphabet, though occurring on stones still extant in Abyssinia (Salt's *Trav.*, p. 414), will make the student pause before he adopts that theory, and derives the Ethiopic letters from the Greek. Accurate copies of some ancient Ethiopic

inscriptions, and great labour judiciously bestowed on the interpretation of them, also give the author a fresh claim to the thanks of the antiquary; and it may be remarked that he seems to have ascertained, for the first time, the true name* of the King by whose order the celebrated Axumitic inscription was engraved. Dr. Rüppell, whose zeal for the advancement of knowledge never relaxes, gives reason to hope that a chasseur, whom he dispatched from Góndar to Shawwá,† in 1837, will collect such information as will form a supplement to the present work, and he promises to impart this information to the public, should his expectations be realised.

The limits to which this notice is necessarily restricted, will not allow of any considerable extracts from a book which presents so many passages worth extracting: all, therefore, that can here be given is Dr. Rüppell's description of the falls near the Great Cataract of Alata; which Bruce says (vol. v. p. 105) "was the most magnificent sight that he ever beheld;" and where "the water," according to Lobo (*Relation of the River Nile*, p. 16: Lond. 1669), "being shot with so much violence as to fall at a distance, makes an arch, and under that, leaves a large road where people pass in security not to be wet. There are convenient seats cut in the rock for travellers to rest themselves, where they enjoy the most pleasant sight imagination can fancy, made by the sun's reflection on the water, so producing glorious and pleasing colours resembling those of the rainbow, which at this nearness of the water, most deliciously satisfy and please the eye." That cataract Dr. Rüppell unfortunately missed, from not having Bruce's *Travels* at hand.

"Two hours (6 miles) from Denbasa," he says (S. 212), "we crossed the little river Alata, which here, flowing from N.N.E., discharges its waters into the Abáí (Nile), $\frac{3}{4}$ of an hour (2 miles) west of the bridge. Passing through a tract continually becoming more wild and rocky, we at length, after travelling for $\frac{3}{4}$ of an hour further, reached the bridge of Deldai,‡ which is a highly singular and striking object. Through a narrow cleft in the rock, more than 60 feet deep, the perpendicular sides of which are in many places scarcely 2 fathoms asunder, the Nile here flowing to the S.E.,§ rushes down through an uninterrupted series of foaming cascades.... The bridge (plate 9) consists of eight

* Lizanas instead of Aizanas. In Greek, A differs less from Λ than A from L in Ethiopic.

† From Mr. Isenberg we learn that the *w* in this name is doubled; the first vowel is not therefore, as before supposed, mute.

‡ Deldai, which the traveller took for a proper name, signifies "the bridge."

§ N.E. in the original; but the map shows that there is either some very short bend in the river's course here, or that nordöstlich is put, by mistake, for südöstlich.

arches, of different sizes, of which the northernmost, by much the largest of all, crosses the cleft, and is therefore the only one beneath which the river always passes. The length of the bridge is 90 paces (150 yards), and its breadth 15 feet (5 yards). It is not straight, and is crossed in the middle by a wall, in which there is a gate: at its northern end there is a kind of watch-tower, now in ruins. All the stone-work of the bridge consists of lava, except the arching, which is formed of hewn sandstone."

"The hills lying immediately over the banks of the river are wild, rent masses of volcanic rock, partly overgrown with large trees and rampant shrubs. About 100 feet to the west of the bridge, the upper edges of the rift in the rock, which forms the proper bed of the stream, approach each other to within about 9 feet; and I was assured that the distance was often cleared by a bold leap. How far the foaming cascades extend eastwards I could neither ascertain by my own observation nor learn by any satisfactory report from the natives. To the west a chain of similar waterfalls continues for about a $\frac{1}{4}$ of an hour (1 mile); between which and the Lake Tzana the river is said to cut its way, in a serpentine course, through rich meadow-ground. At the commencement of the cascades to the east, there is a small island, with the convent of Abú Kēdam, near which the great waterfall described by Bruce (vol. v. p. 105) must be sought, according to him, about $\frac{1}{2}$ an English mile above the bridge." Bruce has, apparently not without reason, accused Lobo of exaggeration in his account of this cataract; but the Portuguese traveller does not say that he himself sat beneath the curve of the river, as Bruce affirms; and Dr. Rüppell heard the roar of waters very distinctly (mit vieler Deutlichkeit, S. 212) when 7 or 8 miles distant; he, however, says nothing of "the minute atoms and subtile smoke" of the water "seen as far" (Lobo, p. 16). Had Bruce been less flippant in charging others with exaggeration, his own transgressions in that line would not have been so severely visited.

The meteorological observations and heights barometrically ascertained by the author during his residence in Abyssinia from 1831 to 1833, which have been carefully examined by Dr. Mädler of Berlin, form a very valuable addition to our physical knowledge: but that which will most immediately attract the geographer's notice, is the beautiful map of the author's routes, laid down with his well-known care and accuracy. If the correction of flagrant errors in preceding maps be a merit in the eyes of the geographer, the author has a powerful claim to our thanks; for he has shown that the rivers between Adwa and Aksūm run southwards, instead of northwards, as "all preceding

authorities" had maintained; a discrepancy so great as to attract the notice of a learned and acute writer in the 'Athenæum' (No. 669), whose demurrer to this innovation was pertly but satisfactorily answered, in a subsequent number of that journal, by a very competent witness, M. Antoine d'Abbadie. The fourteenth section of the present work (S. 411), containing the details of Dr. Rüppell's astronomical observations, is one of those important contributions to geographical science which render his book peculiarly an object of interest to the readers of this Journal.*

* As a prophet rarely has honour in his own country, some anonymous German reviewer has endeavoured to anatomise the Frankfort traveller, and, among other serious errors, finds fault with his calling a place Gekdud instead of Jack-dull. May not this learned reviewer have fallen in with some English wag, who wished to help him to an appropriate *nom de guerre*?

MISCELLANEOUS.

I.—*Additions to Orography.* Communicated by Professor CHAIX, of Geneva.

	Height above the Sea.	
	Metres and Decimetres.	English Feet.
Island and Castle of If, 3300 metres W.S.W. from Fort St. Nicolas at Marseille	48.	157
Island of Ratoneau (highest point) 4500m. W. by S.	88.	289
„ Potnegues (h. p.) 4800m. W.S.W.	95.	312
Fort Notre Dame de la Garde, 1000m. S.E.	103.	338
Village of St. Barnabé, 4800m. E.N.E.	88.	289
La Viste, village on the road to Aix, 7400m. N.	129.	423
Mountain de l'Estaque (aux 13 vents) 9000m. N.N.W.	282.	925
Chateau Gombert, 9200m. N.E.	136.	446
Collet Bedon (hill) 1000m. W. from Chateau Gombert	220.	722
Montagne de l'Etoile, 12,300m. N.N.E. from Fort St. Nicolas	595.	1952
Marseille Veire (mountain) 7600m. S.	467.	1532
Baume de Roland (grotto on the northern slope of Marseille Veire)	152.	508
Montagne de Luminy, 10,000m. S.E.	325.	1066
Mont Puget, 10,600m. S.E.	633.	2077
Montagne de la Gineste, 9200m. E. by S.	355.	1164
Montagnes de la Gardiole, 12,200m. E. by S.	548.	1797
„ de St. Cyr, 9000m. E.S.E.	659.	2162
„ de Carpiagne, 10,600m. E.S.E.	512.	680
Ste. Croix, St. Trone, (hill) 6800m. E.S.E.	310.	1017
[These heights were ascertained barometrically by Mr. Chaix, and found to correspond very closely with the results obtained trigonometrically; but as whenever there is a difference, however slight, the preference should be given to the results of the exacter method, the above are from the cadastral plan of the commune of Marseille. The distances are taken from Fort St. Nicolas, at Marseille.]		
<i>Heights of some of the Lakes of Switzerland, trigonometrically obtained by Eschmann and others.</i>		
Lake of Geneva (according to the French engineers) above the sea	375.	1230
„ of Constance	395.9	1299
„ of Zurich	406.1	1332
„ of Zug	415.	1361
„ of Lucerne	435.5	1430
„ Greiffensee (Canton of Zurich)	436.7	1433
„ of Lauerz (Cn. of Schwytz)	448.6	1466
„ of Hallwyl (Cn. of Argovia)	450.8	1480
„ of Baldegg (Cn. of Lucerne)	465.7	1529
„ of Sarnen (Cn. of Unterwald)	471.4	1545
„ of Sempach (Cn. of Lucerne)	505.5	1660
„ of Pfäelikon (Cn. of Zurich)	538.3	1765
„ of Lungern (Cn. of Unterwald), since the works which have sunk its level	657.7	2159
„ of Aegeri (Cn. of Zug)	726.5	2385

<i>Heights barometrically obtained by Mr. Chaix in Savoy and Dauphiny.</i>	Height above the Sea.	
	Metres and Decimetres.	English Feet.
N.B.—The inferior station was the observatory at Geneva, 407m., or 1335 feet above the level of the sea.		
Pont de Tréville, on the Menoge, between Geneva and Bonneville	444.5	1460
The Arve at Bonneville	434.5	1427
Pont de Cornillon, or de Rumilly, on the Borne, $1\frac{1}{2}$ league S. of Bonneville	491.	1611
La Croix de le Braz, northern entrance to the valley of the Little Bornand	742.6	2438
Termine, hamlet in the valley of the Little Bornand	692.2	1270
Sasiaz, ditto	685.2	2247
Village of Little Bornand (10 feet French above the soil), mean of a series of observations giving very nearly the same result each	802.0	2631
" mean of a second series of observations, corresponding equally with each other	722.6	2372
Puse, hamlet, to the E. of, and close to the Little Bornand	923.2	3028
Char de Crème (at its entrance), a coal-mine in the mountain, E. of Little Bornand	1094.4	3589
Lake of Lessy, at the foot of the Needles of the mountains of Vergy	1688.5	5538
Granges de Lessy (Chalets), near the small lake of Lessy	1753.5	5578
Aiguille de Domingy, to the S. of lake Lessy, the 5th and last of the peaks of Vergy	2044.5	6707
Boitons (Petites Granges) sur Villard, above Little Bornand	1312.1	4305
Col de Cliave (Mountains of Vergy) at the cross	1602.1	5256
Bottom of the desert valley of Siset, between the base of the peak of Jalouvre and peak or Aiguille Blanche	1762.2	5781
Aiguille de Jalouvre, the 3rd of the Mountains of Vergy	2387.6	7835
[“ My brother and I,” says Mr. Chaix, “ are the first Swiss who have set foot on this peak (13th October, 1839), and the dangers to which the ascent exposed us were such as to make it probable that we shall have but few imitators.”]		
Col de Tovire, between the Reposoir and the Great Bornand	1606.	5269
Portes de Naves, defile at the bottom of the valley of the Reposoir	895.6	2939
Cluses, the town of, from a 2nd story	491.5	1614
Bourg d'Oysans (Département de l'Isère), level of the soil at the posthouse	740.	2428
" a mean of 4 other observations, less certain	758.	2487
Vizille (Département de l'Isère), pavement of the town	281.1	1922
" at the level of the Romanche, under the bridge	257.7	846
Fort de Barraux (Isère), on the road in front of the fort	343.1	1125
Chapareillon, at the French custom-house, frontier of Savoy	292.3	958
Chamberry, at the 1st story of the Hôtel de la Poste, mean of 3 observations	277.2	909
Alby (Savoy), parapet of the bridge on the Cheran	402.2	1319
Pont de la Caille, new suspension-bridge over the torrent of Usas between Annecy and Geneva	656.6	2156
Montenvers, at the pavilion	1930.2	6234
Caillet, asbestos grotto, halfway between Chamouny and Montenvers	1490.6	4892
Saint Gervais les Bains, in Faucigny, at the level of the torrent of Bonnant, mean of 7 observations	621.	2037
Bionnay, village near St. Gervais	951.6	3133
Saint Nicolas de Verosse, ditto	1045.9	3432
Mégève, ditto	1116.5	3665
Flumet	922.5	3028
St. Pierre d'Albigny (Savoy, valley of the Isère)	433.6	1424
Montmélian	325.8	1070
Pontchara, frontier of France	267.1	876
Moutaret, hamlet between Pontchara and Allevard	580.4	1903
Allevard, highest point of the road from Allevard to Pinsot	733.0	2405
Allevard, Hôtel des Bains, 1st floor, mean of 5 observations	482.5	1585
Chapelle du Bar, village N. of Allevard	449.5	4761

	Height above the Sea.	
	Metres and Decimetres	English Feet.
Montgarrin, highest point on the road from Montgarrin to Pont du Diable	757·7	2487
Pont du Diable, on the Beins, frontier of France and Savoy	668·9	2195
Saint Hugon, Chartreuse, 1st floor	792·5	2602
" Forges, $\frac{1}{2}$ league to the S.E. of the Convent, on the Beins	810·2	2658
Lake of Saint Clair, between Arvillard and La Rochette, in Savoy	355·1	1165
Grenoble, mean of several obs., 3d story of the Hôtel of the Three Dolphins	252·6	830
" Citadelle inférieure, at the Cantine	322·5	1060
" Summit of Citadel or upper Bastille	498·	1634
Petit Salève, mountain near Geneva, Savoy (summit)	900·2	2953
Mornex, village of the Petit Salève, à l'Hôtel de la Grenade (m. of 3 obs.)	566·5	1860
Monetier, au Chateau des Grottes, on the Petit Salève	701·3	2300
Etraubières, at the level of the Arve	413·6	1358
Begnins, village near Nyon (Vaud) à la Cure, mean of 2 observations	521·8	1713
Luing, village near Begnins	474·2	1155
Celigny (Canton of Geneva), at the terrace Bernard	409·6	1355

	Heights estimated by corresponding Observations made			
	at Marseilles.		at Geneva.	
	Metres.	English Feet.	Metres.	English Feet.
Observatory of Marseille (Reservoir of Barom.), deduced from levels	46·6	154		
Fort Notre Dame de la Garde (Marseille), the platform at foot of signal-post (mean of two observations)	133·5	440		
Aix (in Provence), foot of the cross	173·5	571		
Peyrolles (Dépt. du Rhone), the post-house	131·2	430		
Mirabeau (Dépt. de Vaucluse), village near the Durance; level of the road	248·4	814		
Manosque (Dépt. des B. Alpes), first story of the Hôtel des Alpes	396·9	1303		
Ditto. Second observation	396·1	1299		
Peyruis (Dépt. des B. Alpes), the post-house	412·2	1352		
Varneyron (Tile-works of), on the old road, at the highest point of the Mountain de la Combe, to the N. of Peyruis	594·5	1952		
Gap, at the Café des Beaux Arts, elevated part of the town	753·2	2471	769·5	2526
Col de St. Guigues (highest point), between Gap and St. Bonnet (Dépt. des H. Alpes)	1272·5	4177	1272·8	4177
Corps (Dépt. de l'Isère), level of the street	945·3	3100	956·8	3140
Souchons, village (Dépt. de l'Isère), between Corps and La Mure, at the post-house (<i>doubtful</i>)	..	..	799·5	2624
Bonne (at the bridge), between Souchons and La Mure	..	..	622	2041
La Mure (Dépt. de l'Isère), first floor of the post-house	861·9	2828	884·3	2900
In my Map of Savoy, published in 1831, I gave from Friéville's Dictionary	869·3	2851		
Vergenaz (Dépt. de l'Isère), hamlet, half a league from La Mure, going towards the Anthracite mines of Pré de Chagnat	1034·1	3392	1057·5	3471
Lombin (Dépt. de l'Isère), in the Valley of Graisivaudan, on the road	..	..	244·5	804
Cerdon, bourg. (Dépt. d'Ain), at the post-house	..	..	311·1	1020

	Heights estimated by corresponding Observations made			
	at Marseilles.		at Geneva.	
	Metres.	English Feet.	Metres.	English Feet.
Cerdon, col du, between Cerdon and Nantua, highest point	607.6	1995
Nantua (Dépt. d'Ain), the street	495.9	1627
Bellegarde (Dépt. d'Ain), ground-floor of the Hôtel de la Perte du Rhone	352.1	1153
Wufflens (Cant. de Vaud), court-yard of the Chateau, near Morges	485	1591
Petit Sacconez, village (Cant. de Genève), highest point	441.8	1450
Pinchat, village (Cant. de Genève), $\frac{1}{2}$ of a league from Carouge, pavement at the house Gourdon	447	1467
Plongeon, village (Cant. de Genève), at the balcony of the house Archer, $\frac{1}{2}$ a league from Geneva; mean of two observations	391.6	1286
Piton, highest point of Mount Salève, Savoy, province of Carouge	1401.6	4600
Croisette, hamlet on Mount Salève, $\frac{1}{2}$ of a league N.E. of the Piton	1177.5	3865
Bellecombe, tower of, (Prov. of Carouge, Savoy,) parapet of the bridge over the Arve	451.5	1483
Pouilly, the house Châtier, near the village of, (Faucigny)	527	1729
Pont de Trebille, on the Menoge, on the parapet (Faucigny, Savoy)	452.5	1486
Faucigny, chateau, platform of, (Prov. of Faucigny); mean of three observations	676.2	2218
Faucigny, village, near the chateau	659.5	2165
Albens, village, (Prov. de Genevois) between Aix and Annecy	356.1	1171
Douvaine, village, (Prov. de Chablais, Savoy,) post-house	443.2	1453
Allinges, at the top of the village, (Prov. of Chablais)	541.5	1778
Allinges, highest point of the platform of the Chateau des	716	2349
Bons, village of Chablais, in front of the inn	569.3	1867
Former observations, made with my friend Mr. Alph. de Candolle's barometer, and mentioned by him in his <i>Hypsométrie</i> , had given me for—				
The Chateau des Allinges	711.9	2336
The village of Bons	549.6	1804
The number 2672 feet (French), 868 metres, given in my map of Savoy, was taken from Keller's Map of Switzerland.				

II.—*Positions in Ceylon.* Communicated by R. TEMPLETON, Esq., Assistant Surgeon, R.N.

	North Lat. ° ' "	East Long. ° ' "	
Colombo . . .	6 56 6	79 53 46	The latitude is the mean of 348 altitudes, taken at Mr. Templeton's house, and reduced to the Flag Staff. The longitude is derived from that of Madras,* and other well fixed positions on the Coast, from runs of the <i>Melville</i> , <i>Curacao</i> , <i>Benares</i> , and <i>Royal Tiger</i> . It is certainly very nearly exact.
Negombo . . .	7 12 0	79 53 10	Approximate.
Chilaw . . .	7 36 0	79 51	<i>Idem.</i>
Calpentyne . . .	8 14 50	79 51 30	<i>Idem.</i>
Mutual Point . . .	8 18 53	79 49 30	The extreme north point at the Entrance to Dutch Bay. Mr. Quintom, I. N.
Putlam . . .	8 3 0	79 57 30	Mr. Quintom.
Kardemalle Point	8 32 27	79 55	The Fort Lodge (Old Ruins). Mr. Quintom.
Arippe . . .	8 47 56	79 58	Northern extremity, sandy point. Lt. Powell.
Carrative . . .	8 30 41	79 51 28	Western South Entrance. Lt. Powell.
Manaar Channel . . .	—	79 56 33	South-east end of the Fort. Lt. Powell.
Manaar . . .	8 58 42	79 57 34	North point. Sandy point West of Pesali, Mr. Quintom.
Paumban . . .	9 17 5	79 16 30	The Flag Staff. Lt. Powell.
Ramisseram . . .	9 18 7	79 20 56	The Great Pagoda. Deduced from the Trigonometrical Survey of India.
Delft . . .	9 32 0	79 45 42	The Old Dutch House. Lt. Powell.
Jaffna . . .	9 39 50	80 5 0	Approximate.
Amsterdam Isd . . .	9 43 50	79 52 9	N.W. point. Longitude derived from that of Trincomalee. Mr. Higgs, Master-Attendant at dockyard, Trincomalee.
Point Calymere . . .	10 18 30	79 53 5	Lt. Powell.
Tondemanar . . .	9 48 6	80 12 39	Searcher's House. Eastern side of the Inlet. Latitude measured from Point Pedro. Longitude from that of Trincomalee. Mr. Higgs.
Point Palmyra . . .	9 48 52	80 15 58	North Point of Ceylon. Measured from Point Pedro. Mr. Higgs.
Point Pedro . . .	9 48 44	80 17 58	Latitude observed. Longitude from that of Trincomalee. Mr. Higgs.
Moelativee House . . .	9 14 4	80 52 20	By bearing and estimated distance from the shoal. Mr. Higgs.
Moelativee Shoal . . .	9 14 50	80 54 44	Eastern edge. Latitude observed. Longitude from Trincomalee. Mr. Higgs.
Trincomalee . . .	8 35 38	81 17 52	Fort Frederick Flag Staff. Mr. Higgs.
	8 33 31	81 16 36	Dock-yard flag-staff, Mr. Higgs. Latitude 8° 33' 26" Lieut. Powell. The longitude may be considered nearly exact; the latitude is derived from the mean of very consistent observations.
Foul Point . . .	8 32 22	81 22 18	By measurement. Mr. Higgs.
Venloos Bay . . .	8 0 0	81 38 0	Approximate.
Friar's Hood . . .	7 28 0	81 43 0	<i>Idem.</i>

* Longitude of Madras—Observatory 80° 14' }
Fort Fl. St. 80 16' 2 } Lieut. Raper.

It is supposed that one of these is the longitude from which the others are measured, but we cannot say which.—Ed.

	North Lat. ° ' "	East Long. ° ' "	
Komense Aar . . .	6 31 10	81 48 35	The Entrance to Kombochan River.
Little Basses . . .	6 25 40	81 51 19	Centre of the Group. Derived from the survey made in 1826 by H.M.S. <i>Tamar</i> .
Little Point . . .	6 28 40	81 47 20	The nearest point of land to the Little Basses.
Elephant Rock . . .	6 23 48	81 31 45	A conspicuous object a little inland.
Great Basses . . .	6 12 0	81 32 19	Longitude given by Mr. Higgs, being 15' 43" E. of Trincomalee dockyard.
Amedowe Point . . .	6 17 10	81 28 20	The nearest land to the Great Basses.
Batticaloa . . .	7 40 47	81 45 6	Port. Latitude reduced from the observed latitude of the harbour mouth. The longitude from that of Trincomalee. Mr. Higgs.
	7 43 32	81 44 49	Harbour mouth. Lat. observed. Mr. Higgs.
Hambantotte . . .	6 6 58	81 10 42	Mr. Twynam, Master-Attendant at Point de Galle. The longitude being altered to suit the amended longitude of Galle.
Calamatra Bay . . .	6 4 7	80 59 0	<i>Idem.</i>
Mahawelle Bay . . .	5 59 30	80 48 17	<i>Id.</i>
Tangalle . . .	6 1 16	80 50 46	<i>Id.</i>
Nillewelle Bay . . .	5 57 37	80 46 19	<i>Id.</i>
Gandore . . .	5 55 42	80 40 28	<i>Id.</i>
Dondra Head . . .	5 55 15	80 38 48	<i>Id.</i>
Matura . . .	5 56 26	80 36 5	<i>Id.</i>
Belligam Bay . . .	5 57 30	80 29 18	<i>Id.</i>
Dodandowe Bay . . .	6 6 47	80 10 22	<i>Id.</i>
Galle . . .	6 1 26	80 15 58	The longitude is a mean from numerous runs of vessels, including those of the <i>Benares</i> and <i>Royal Tiger</i> . It is unquestionably very exact.
Caltura . . .	6 35 0	80 1 0	Approximate.
Pantura . . .	6 44 0	79 57 0	<i>Id.</i>
Mt. Livinia House.	6 49 56	79 54 57	By bearing and measured distance from Colombo.

The officers of her Majesty's navy and the masters of merchant vessels are earnestly requested to forward, under cover to the Colonial Secretary, any information they may collect, which can tend to increase the accuracy, or extend the limits of the preceding table.

Bearing of Adam's Peak from Colombo S. 78° 59' E.

Galle N. 18 47 E.

" Galle variation 1° 16' 5 E.

Appendix to Messrs. ISENBERG and KRAPF's Journal.

III.—Routes in Abyssinia and the neighbouring Countries, collected from Natives. By Dr. C. TILSTONE BEKE.

[The difficulty of collecting satisfactory results from half-civilised people, and the errors occasioned by reports misunderstood, have long been a bar to the progress of our geographical knowledge with respect to countries of difficult access: the very judicious method, therefore, of avoiding such errors, adopted by Dr. Beke, and explained in the following extract from one of his letters, is well worthy of the attention of travellers.—ED.]

"In order to obtain information I adopt the following course: I inquire, first, the time the caravan is going from one extremity

of the route to the other; secondly, how long a messenger on foot takes to do it; thirdly, the several stations on the route at which the caravan stops; fourthly, the general direction of the road; and, fifthly, if there is anything particular to be remarked with respect to the several stations. The results that I have come to from this mode of proceeding are:—that the number of the stations is almost equal to that of the days (including stoppages) employed by the caravan on the journey, and that a messenger on foot does *three* caravan stages in one day. A reference to the several routes will show this. I may add here, that a mule is considered to go at the same rate as a footman; but it is to be understood that it is never beaten, and is allowed to go at its own pace."

1. *Route from Tajurrah to A'usa, and from thence to the Country of the Wollu Galla.*—The caravan is about 15 days going to A'usa, and as much from thence to Hējra. A messenger on foot will reach A'usa in 4 or 5 days, and go from thence to Hējra in 4 days.

Caravan Stations.

Ḍilliel	1	Station.	
Ra'esha	1	"	
Dafeni	1	"	
Asal	1	"	
Halulli	1	"	
Gogadi	1	"	
— 6			
Ungammana . .	1	"	
Garubbus . . .	1	"	
Fora	1	"	
Dákk	1	"	
Abhébbard (lake)	1	"	
Bodo	1	"	cross the river H.
Ausa	1	"	
— 7			
Adobarhi . . .	1	"	
Erruli	1	"	
Garauni	1	"	
Mánat	1	"	
Magúrra	1	"	
Té'o	1	"	hot springs.
Husein kóma . .	1	"	in Arabic, Jebel Husein.
Addorta	1	"	
—	1	"	(name forgotten by my informant.)
Saka'ela	1	"	
Tarcira	1	"	
R. Hawásh . .	{ 1	"	before crossing the river.
	{ 1	"	after do.
Remi	1	"	
Inká ela	1	"	

Kabárra . . .	1	Station.
'Unkandéit . . .	1	"
Héjra . . .	1	"
—		18

In all 31

Chief Towns of Wollu Galla.

Melti and Rieki . . .	1	Station.	These places are close together.
Ain Aubá . . .	1	"	Residence of Sultan Buno.
Gadarra . . .	1	"	In Arrowsmith's map is a place called Burra, probably the same.
Haik . . .	1	"	The town of Haik is situated on an island (?) in the lake.

—
4 Stations.

2. *Route from Zeila' to Harrar.*—The caravans take 15 ; or, very quickly, 12 days. A messenger on foot takes 5 ; on a mule, 4 days. General direction of the road S.W.

Caravan Stations from Zeila' to Harrar.

		Brought forward	7 Stations.
Tegáshe . . .	1 Station.*	A'rtu . . .	1 "
Kallam . . .	1 "	Jeldésa . . .	1 "
Asbali . . .	1 "	Balláua . . .	1 "
Agamsa . . .	1 "	Dáremo . . .	1 "
Kora' ali . . .	1 "	Eego . . .	1 "
Dalamélti . . .	1 "	Sésecho . . .	1 "
Garásele . . .	1 "	Harrar . . .	1 "
—		—	
Carried over		7	15 Stations.

3. *Route from Berbera to Harrar.*—The caravan takes 25 days ; a foot-messenger 8 days. General direction of route W.

		Brought forward.	13 Stations.
Nassie . . .	1 Station.	Abárrro . . .	1 "
Auliacombo . . .	1 "	Arabséia . . .	1 "
Jéri . . .	1 "	Wuch 'ali . . .	1 "
Biduhár . . .	1 "	Great Subúlla . . .	1 "
Dimis . . .	1 "	Little Subúlla . . .	1 "
Arla . . .	1 "	Edierra . . .	1 "
Anchera . . .	1 "	Marákh . . .	1 "
Ga'an . . .	1 "	Badu . . .	1 "
Dámal . . .	1 "	Sagaré'e . . .	1 "
Gárgan . . .	1 "	Dóghole . . .	1 "
Errer . . .	1 "	Gambéla . . .	1 "
Asbali . . .	1 "	Harrar . . .	1 "
Udau . . .	1 "	—	
—		—	
Carried over		13	25 Stations.

Tajurrah, 14th Dec., 1840.

* The whole place of Zeila' only a short distance from that town.

I.—Titles of Ethiopic Books mentioned by their Writer, a learned Abyssinian.

- | | |
|-------------------------------|---------------------------|
| 1. Arághwi Manfezáwi. | 17. Hezand Mora. |
| 2. Felikiyus. | 18. Echi Yohannes. |
| 3. Manshak. | 19. Zéna Aihud. |
| 4. Taamrát. | 20. Genzet. |
| 5. Gadela Zamatal. | 21. Giyorgis Wold Amed. |
| 6. Tamera Maryam. | 22. Matshafa Mistir. |
| 7. Délsana Maryam. | 23. Erotaa Haimanót. |
| 8. A'rgano (Organon). | 24. Wudastyé Amlak. |
| 9. Senkesár (Synaxaria). | 25. Dersana Mikhaíl. |
| 10. Gadela Giyorgis. | 26. Dersana Med-han'álim. |
| 11. Tamera Giyorgis. | 27. Kufályé. |
| 12. Gadela Tekla Haimanót. | 28. Lefafa Tsedek. |
| 13. Gadela Gebra Marfa Keduz. | 29. Egziyab hér Negs. |
| 14. Gadela Gebra Khristos. | 30. Amada Mistir. |
| 15. Abú Shákir. | 31. Tama Degwa. |
| 16. Zéná Markos. | 32. Zéná Fitrat. |

II.—Itinerary from Tadjurrah to Ankóbar.

Date.	Time of Journey.		Hours Traveling.	Estimated distance given in Hours.	Direction.	Place of Arrival.	Remarks.
1839. April 26	From 6½ A.M.	To 9½ A.M.	3	(11)	W.S.W.	A'nababo.	Lies on the Ghubbat-el-Kharáb or Bay of Tadjurrah, which extends further inland in a W. direction.
" 27	3 A.M. 5½ A.M.	5½ A.M. 6 A.M.	2½ ½			Dullgi. Sukta.	Road continues along the coast.
" 28	(6 A.M.)	(6½ A.M.)	½	5 from Tadjurrah		Soggállo.	Lies ½ h. S.W. from Dullgi.
" 29	Midnight, 28 29	7½ A.M.	7½	4	W. N.W. Do. Do. W.	Point of leaving coast. Ankyeféro. Derkellé. Wardelísán, or Wardelíhán. Halting place with acacia trees.	Saw western end of larger bay. Gall'allif'o, called Ankyeféro.
" 30	3 A.M.		3?	1½ from Wardelísán.	S.W. and S.	Extreme western end of bay.	About 3 h. in a direct line from the point where they left the bay.
" 31		6 A.M.	1?	½?	W.	Daferri.	
" 1	3 P.M.	7 A.M.	4	2*	W.? S.W.	Caravanseerá. Marmariso valley. Muyá, an eminence.	Saw salt-lake. Road very winding round southern end of lake, in a straight line only ½ h.
May 1	1½ A.M.	10 A.M.	8½	4	S.	To salt-lake lying 2 h. distant from W. end of bay (Halaksitán.)	
" 2	5½ A.M.	8½ A.M.	4	2	W. and S.W. W. S. & S.W.	Gungun'a. Alligili.	Through valley Kallu, near the Mudaitus.
" 3	3 A.M.	7 A.M.	4	2?	W. N.W. & S.W. W.	Gagade. Karsutu.	
" 4	1½ A.M.	8 A.M.	6½	3	S.	Dalibui.	Caravan road here branches off west or north-west to Hausá.

Date.	Time of Journey.		Hours Travel- ling.	Estimated distance given in Hours.	Direction.	Place of Arrival.	Remarks.
1839. May 5	From 3 A.M.	To 7 A.M.	3 1/2	2 1/2	S.W.	Little Marbu.	
	3 1/2 P.M.	6 1/2 P.M.	3	1 1/2	Almost W. & then more S. General route southward.	Halting place. Ramudeli.	
" 6	3 1/2 A.M.	8 1/2 A.M.	5	3		Goba'ad.	
" 7	3 1/2 A.M.	8 1/2 A.M.	5	3		Aräbdera.	
" 8	3 A.M.	10 A.M.	7	4		Dawaläka.	
" 9	5 1/2 A.M.	10 1/2 A.M.	4 1/2	2 1/2	W. & then S.	Mount Mari.	
" 10	3 1/2 P.M.	After sunset.	6 ?	3 ?	W. ?	W. side of Mountain.	
" 10	4 1/2 A.M.	9 1/2 A.M.	5 1/2	2 ?	S.W.	Lukki.	Rested 1 hour on road.
" 10	3 P.M.	6 1/2 P.M.	3 1/2	2 ?	S.W.	Killelu.	
" 11	1 A.M.	8 1/2 A.M.	7 1/2	2 1/2	S.W., W., N., N.W. & W.	Barudega.	Many obstacles and delays on road.
	3 1/2 P.M.	8 P.M.	4 1/2	2 1/2	S.W.	Halting place near Gayel.	
" 12	5 1/2 P.M.	6 P.M. ?	1 1/2	1	S.W. ?	Gayel.	Remained there a day.
" 14			4 ?	2	S.W.	Alibékele.	Remained here till 16th.
" 16	3 P.M.	7 P.M.	4	1 1/2	W.	Adaïto.	Much delayed by rain.
" 17	7 A.M.	8 1/2 A.M.	1 1/2	1	S.W.	Little Hasnadera.	Saw mountains of Harrar before them, and W., 2 1/2 days' journey distant.
" 18	6 1/2 A.M.	10 1/2 A.M.	4	2 ?	S.W.	Great Hasnadera.	
" 19	8 1/2 P.M.	8 1/2 P.M.	2 1/2	1 1/2	W.	Mulla.	Over stony ground.
" 21	Sunrise.	9 1/2 A.M.	5 ?	2 ?	S.W.	Wuderdera.	
" 22	3 1/2 P.M.	8 P.M.	4 1/2	2 1/2	S.W.		
" 23	5 1/2 A.M.	9 1/2 A.M.	4	2 1/2	S.W. ?	Korde'eti.	
" 23	3 1/2 P.M.	7 P.M.	3 1/2	2 ?	S.W.	Metta.	
" 23	7 P.M.	8 P.M.	1	1 1/2	W.	Kummi.	
" 24	5 1/2 A.M.	10 1/2 A.M.	5	2 1/2	W.	Ruined Bedwin vil- lage.	
" 25	6 A.M.	9 A.M.	3	1 1/2	W.S.W.	Hamwi'sa.	
" 26					W.	Little Mulla.	From hence the road was almost always W. (Krapf.)
" 26	3 P.M.	8 1/2 P.M.	5 1/2	3 ?	W. ?	Berinda.	
" 27	5 1/2 A.M.	9 A.M.	4 1/2	2 1/2	W. ?	Hanni.	
" 28	2 1/2 A.M.	(10 A.M. ?)	8 ?	4 ?	W.	Debbille.	In the valley of the Hawāsh.
" 29	4 1/2 A.M.	6 1/2 A.M.	2 ?	1 ?	S.W.	Bank of the Hawāsh.	And crossed the Ha- wāsh to near Mel- kukuyu.
" 30	4 1/2 A.M.	11 A.M.	6 1/2	3 1/2	S.W. ? & W.	Asseboti.	
" 31	3 1/2 P.M.	Evening.	5 ?	3 ?	W. ?	Atkonti.	
" 31	4 1/2 A.M.	8 A.M.	3 1/2	2 ?	W. ?	Dinomali and village of Farri.	Frontier plan of Itāt.
			184	95			Waited for permission from king to pro- ceed.
June 5				4 ?	W. ?	Alia Amba.	
" 6				3 ?	W. ?	Ankōbar.	Did not stop there.
" 7		1 P.M.		102		Metakuf.	
" 7						Islām Amba, a village.	On the road between Ankōbar and An- golloffa.
" 11							

III.—Thermometrical Observations.

Date.	Place.	Time of Day.	Thermometer. (Fahrenheit's Scale.)	Remarks.
1839.				
April 9	Tajurrah . .	1 P.M.	93 in the shade.	
" 22	Do. . .	—	95 in the room.	
" 23	Do. . .	—	90 do.	Sky overcast.
" 27	Saggallo . .	—	94½	
" 28	Do. . .	11 A.M.	96½	
" 30	Dafferri . .	Noon.	99	
—	Do. . .	½ P.M.	100	
—	Do. . .	Later.	102	
May 1	Gungunta . .	Noon.	107	
—	Do. . .	3 P.M.	106	
" 3	Gagade . .	{ Between 11 A.M. and ½ to 2 P.M. }	106 to 109	{ Wind not so hot as on preceding days.
—	Do. . .	3½ P.M.	107	
" 4	Dalibui . .	11½ A.M.	97	
—	Do. . .	Noon.	98	
—	Do. . .	1 P.M.	99	
—	Do. . .	5 P.M.	97	
" 5	Little Marha .	Noon.	95	
—	Do. . .	½ P.M.	97	
—	Do. . .	½ P.M.	100	
—	Do. . .	1 P.M.	102	
—	Do. . .	2½ P.M.	103½	
—	Do. . .	2½ P.M.	104	
" 6	Ramudeli . .	11½ A.M.	102	
—	Do. . .	2 P.M.	102	
" 9	Mari . . .	10½ A.M.	90	
—	Do. . .	11 A.M.	93	
—	Do. . .	½ P.M.	97	
—	Do. . .	1 P.M.	98	
" 10	Lukki . . .	11½ A.M.	97	
" 11	Barudega . .	11½ A.M.	103	
—	Do. . .	1 P.M.	95	After a shower of rain.
" 12	{ Resting-place near Gayel }	10 A.M.	93	
—	Do. . .	10½ A.M.	98	
—	Do. . .	1½ P.M.	107	
—	Do. . .	2 P.M.	108	
—	Do. . .	3½ P.M.	108	
" 13	Gayel . . .	7½ A.M.	82	
—	Do. . .	8½ A.M.	85	
—	Do. . .	10½ A.M.	98	
—	Do. . .	11½ A.M.	105	
—	Do. . .	Noon.	105½	
—	Do. . .	1 P.M.	108½	
—	Do. . .	1½ P.M.	109	
" 14	Alibékele . .	2½ P.M.	103	
—	Do. . .	2½ P.M.	101½	{ A thunder-storm ap- proaching.
—	Do. . .	3 P.M.	99	
—	Do. . .	7½ A.M.	87	
" 15	Do. . .	10½ A.M.	99	
—	Do. . .	11½ A.M.	102½	
—	Do. . .	11½ A.M.	106	
" 16	Do. . .	6 A.M.	78	
—	Do. . .	8 A.M.	86	
—	Do. . .	9 A.M.	88	

Date.	Place.	Time of Day.	Thermometer. (Fahrenheit's Scale.)	Remarks.
1839.				
May 16	Alibékele . .	10 $\frac{1}{2}$ A.M.	94 $\frac{1}{2}$	Sky overcast.
—	Do.	11 $\frac{1}{2}$ A.M.	100	
—	Do.	Noon.	98	
—	Do.	1 P.M.	105 $\frac{1}{2}$	
—	Do.	1 $\frac{1}{2}$ P.M.	107	
" 17	Little Hasnadera	9 $\frac{1}{2}$ A.M.	90	Sky overcast.
—	Do.	10 A.M.	94	
—	Do.	$\frac{1}{2}$ P.M.	104	
—	Do.	$\frac{3}{4}$ P.M.	107	
—	Do.	2 P.M.	110 $\frac{1}{2}$	
" 18	Great Hasnadera	2 $\frac{1}{2}$ P.M.	106	Sky overcast.
" 20	Mullu . . .	8 $\frac{1}{2}$ A.M.	92	
—	Do.	1 P.M.	106	
—	Do.	2 P.M.	103	
" 22	Kerde'eti . .	1 P.M.	110	
" 23	Métta . . .	11 A.M.	98	Hazy. Wind N.E.; warm.
—	Do.	$\frac{1}{2}$ P.M.	103	
" 24	(Ruined village between Métta and Hamawisa)	5 A.M.	69	
—	Hamawisa . .	During aftern.	105	
" 25	Great Mullu .	4 $\frac{1}{2}$ P.M.	102	
—	Do.	9 P.M.	73	
" 26	Do.	After sunrise.	66	
—	Do.	11 $\frac{1}{2}$ A.M.	104	
" 27	Hammi . . .	$\frac{1}{2}$ P.M.	100	
June 6	Metakuī . .	During night.	{ Not much above 40.	

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CARTE Hydrographique des Parties Connues de la Terre.

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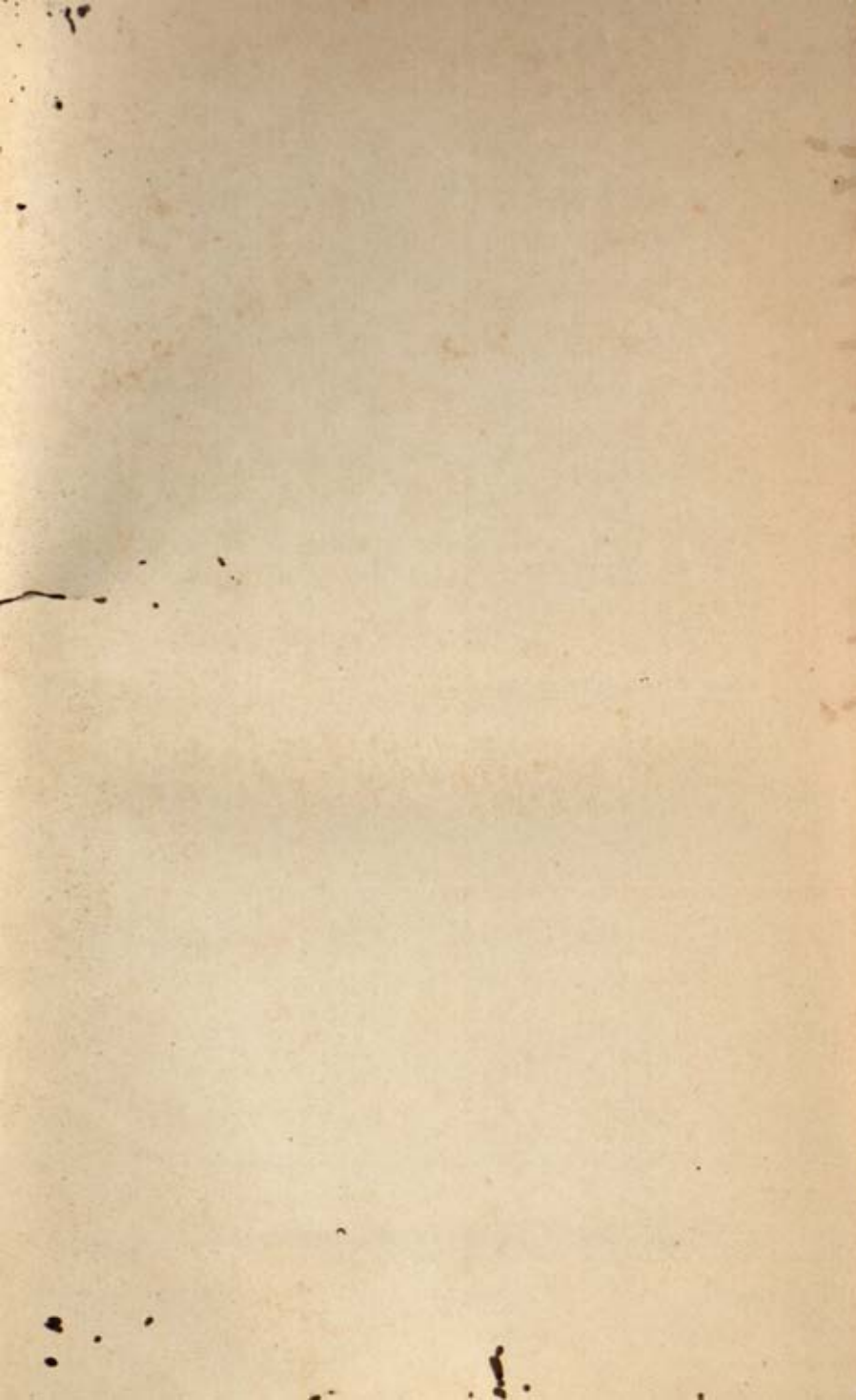
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